MUHAMMAD MUSTAFA RASHID

ESSAYS IN ECONOMICS

Macroeconomic analyzes and perspectives of economic thought

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Essays in Economics

Macroeconomic analyzes and perspectives of economic thought

Muhammad Mustafa Rashid
University of Detroit Mercy, USA

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ISBN: 978-625-7501-81-1 (e-Book)
KSP Books 2022

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Macroeconomic analyzes and perspectives of economic thought

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Dedication

To all my deceased ones

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Dedication

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Introduction

Chapter 1: The purpose of this chapter is to provide insights into how the proliferation of globalization has impacted labor markets both in a advanced industrialized nations and well as developing nations. Insightful analysis will be drawn from Oatley (2011) on division of labor, Jaumotte & Tytell (2007) on labor compensation, Hahn & Narjoko (2013) on the impact on South Asian Countries, Basu (2016) on wage as a share of GDP and Wallace, Gauchat & Fullerton (2011) on the impact of globalization and labor markets on inequality.

Chapter 2: Building on the system of reason provided for by the Greek philosopher and specifically Aristotle, St. Thomas Aquinas built a comprehensive system and theory of natural law which has lasted through the ages. The theory was further developed in the Middle Ages and in the Enlightenment Ages by many a prominent philosopher and economist and has been recognized in the Modern Age. The natural law-theory and system has been repeatedly applied

to the spheres of economic thought and has produced many lasting contributions such as private property rights and individual rights. In recent times with the collapses of the financial system and rapid globalization, there has been a renewed interest in the application of natural law theory to economics to counter a certain anthropology and distortion of values created by a modern economic system of self-preservation deriving its insights from the philosophies of Thomas Hobbes and Niccolo Machiavelli.

Chapter 3: The credit crises experienced in the US in year 2008 is labeled as perhaps the most significant crises since the great depression. The roots of the crises were found in the default of the sub-prime mortgages and the failure occurred in both the US and the UK. Due to the integrated nature of international financial systems the spillover impacted many countries as the economies in Asia and Europe were purchasers of the sub-prime mortgages that originated in both UK and US. The impact of the credit crises in Canada is of unique importance due to the close proximity to US, and both the US and Canada being of great strategic importance to each other as well as one of the largest trading partners.Even though the international financial credit crises adversely impacted many countries, the evidence that has come across recent years point towards the conclusion that Canada was able to weather the crises much better than many other countries.

Chapter 4: In 2001 soon after the Asian Crises of 1997-1998, the DotcomBubble, 9/11, the Enron crises triggered a fraud crisis in Wall Street that impacted the market to the core. Since then scandals such as the Lehman Brothers and WorldCom in 2007-2008 and the Great Recession have surpassed it, Enron still remains one of the most important cases of fraudulent accounting. In 2000's even though the financial industry had become highly regulated, deregulation of the energy industry allowed companies to

place bets on future prices. At the peak of the dotcom bubble Enron was named as a star innovator but when the dotcom bubble burst, Enron's plan to build high speed internet did not flourish and investors started to realize losses. Furthermore, the financial losses of the operations were hid using the market to market accounting technique instead of book value and using special purpose entities to hide debt. The root cause that was identified as a company with a toxic corporate culture focused on officer compensation rather than social responsibility and hence faulty leadership. Is it possible then that; ethical accounting practices, social responsibility and ethics all become inferior goods as income rises in an 'irrationally exuberant'era?

Chapter 5: The debate between natural law and positivist law has been received much attention. Ronald Dworkin exposes the limitation of positivist law through the argument of hard cases. This argument is furthered strengthened when we apply the interpretation of Martin Luther King Jr and the voluntarist natural law tradition, and Lon Fuller's 'procedural view' and the application of the 'principles of legality'.

Chapter 6: The purpose of this report is an appraisal of the gig economy; educating and informing an academic audience of the faults that exist and how these faults lead to exploitation and unjustness in the gig economy. During the writing process, I researched the academic articles and books related to the gig economy and exploitation, enabling myself to form a solid foundation from which to conduct further research. In addition, work was conducted to synthesize the journal articles, online resources and books. The scope of this report examines the corpus of the text relating to the gig economy and exploitation and I emphasize some of the ways the writers manage to display the exploitation and the unjustness in the gig economy.

Chapter 7: The purpose of this chapter is to provide an analysis of the discipline of political economy, international political economy and their respective historical developments. The chapter will then focus on globalization and evaluate the strength and weaknesses of the policy to globalize. Further analysis will be conducted to show the importance of the topic of globalization as it relates to public finance. Rosen & Gayer (2014), Sackery, Schneider & Knoedler (2016), Marlin-Bennett (2017), Ravenhill (2008) and Weingast & Witman (2006) will provide insights into the development of the discipline and its modus operendi. The historical development of the discipline will be provided for by Ingram (1915) and the aforementioned authors will also provide insights into the weakness and strengths of the policy to globalize. Garett & Mitchell (2001) and Kumar (2006) will provide additional insights into the importance of globalization as it pertains to public finance.

Chapter 8: The following project was conducted in partnership with University of Detroit Mercy and Ford Community Corps. Multiple no-profit were approached to make this project possible such as; ERACCE, Detroit Audubon, Detroit International Wild-Life Refuge, Belle Isle. The non-profit ERACCE has provided the criteria of analyzing power in the organizations that are at risk of environmental violations or have had environmental violations. Furthermore, the non-profit has asked for a comparison of power between non-profits working within the sector, such as Detroit Audubon, Detroit International Wild Life Refuge and Detroiters Working for Environmental Justice and the business sector. Hence, this is where ERACCE believes the gap in power to be and hence, environmental injustice and satisfying the proposals need to impact the community. To this end they have provided a sampling of questions that the interview/research should answer. The project has also been written to enhance

Michigan's competitive advantage in; conservation, environmental stewardship, civil rights, industrial innovation, and entrepreneurship as put forth by the Environmental Justice Workgroup in 2018. Furthermore, the rationale that has been provided is the increase in both the private sector and public sector awareness towards sustainability and push towards higher levels of sustainability by CEO's. Two Nobel Laureates have been awarded a joint Nobel Peace Prize in integrating technological and environmental advances into economic theory. His Holiness Pope Francis wrote an encyclical towards integrating environmental ethics into religious faith followed by an effort with Notre Dame and Oxford to establish a center to focus on matters of ecology. UN Sustainable goals have been established and work has been done to map out the frontier of sustainable technologies. Furthermore, during the course of the year long projection March 19th the state of Michigan entered into a lock-down due to the pandemic termed Covid-19 and the project and scope were modified to reflect this change. The research confirms the hypothesis that there is an imbalance of power between the business community and the community involved in the work of environmental injustice issues.

Chapter 9: The management of risk is the goal of a financial institution that sells an option to a client in the over-the-counter markets. In addition to monitoring risks such as Delta(◎), Gamma (◎) and Vega(v), option traders often also carry out, a scenario analysis. The analysis involves calculating the gain or loss on their portfolio over a specified period under a variety of different scenarios. The time period chosen is likely to depend on the liquidity of the instrument. The scenarios can either be chose by management or generated by a model.

Chapter 10: The energy sector is undergoing a rapid transformation and there are many observable signs as to the

rapid development of the industry. Many governments around the world have begun to invest in legislation to incorporate sustainable energy and technologies. Hence, they are able to tap the potential of new technological innovation and energy systems. This chapter examines energy innovations globally with a particular focus on Saudi Arabia, Malaysia, Indonesia and China.

Chapter 11: The concepts of corporate social responsibility and social audit have been developed to a great extent in the last century. Analysis reveals a mature and sophisticated philosophical framework developed over the decades to enhance the relationship between the laborers, the state and the local government. Furthermore, there exists a framework to audit the economic and social activities of the business and a concern and focus in both the private sector and the public sector towards sustainable practices and a culture of ethical leadership. An audit criterion is developed and an examination of 3 top fortune companies reveals valuable insights into social audit and corporate social responsibility as well as the current best practices and benchmarks in the literature.

Chapter 12: Technology ethics is a topic at the frontier of the modern day development. Mostly because due to the fact that our our reliance on technology increases as we become more accustomed to the pace of technological development. Hence, it is important for us understand the ethical implications that arise with these advances. Therefore, this article provides an introduction and foundation for technology ethics, data protection and artificial intelligence.

Chapter 13: The Chicago Mercantile Exchange is a global derivatives market place. The CME group is an order driven exchange that facilitates the trading of forward, futures and options contract on numerous products within key asset classes such as agriculture/ energy/metals, equities, interest rates, and exchange rates. Hence a very popular US interest

rate futures contract is the three-month Eurodollar futures traded on the CME.

Chapter 14:

1 Proliferation of globalization and its impact on labor markets in advanced industrial nations and developing nations

Introduction

Implicit in the term "globalization" rather than the older "internationalization "is the idea that we are moving beyond the era of growing ties between state and are beginning to contemplate something more than the existing conception of state sovereignty. But this change needs to be reflected in all levels of our thought, especially in our thinking of ethics and our political theory. (P. Singer, One World Now, Ethics of Globalization).

The rate of globalization has increased at a phenomenal rate. During the past 50 years we have seen many governments that have progressively eliminated policy barriers to trade. The elimination of these barriers to has led to a decrease in both the transportation cost and the telecommunication cost. This fall in cost has consequently led to the creation of division of labor by making it cheaper to engage in import and export of inputs and organize and manage production on a global scale. Although there have

been many benefits to globalization both for advanced economies and developing economies, there have also arisen problems. Hence, in last 15 years there has been a political backlash against globalization and critiques such as inequality, labor standards and the prioritization of commercial interests over others. Thus, the aim of this chapter is to present findings of globalization with a focus on the labor markets and how globalization impacts the labor markets both in advanced industrial nations as well as developing nations (Oatley, 2011; p.357-358).

Literature review

2.1. The globalizing world economy and the division of labor

Following the standard international economic theory, we understand that an open international economy leads to the division of labor. Hence an opening up of borders allows international trade and allows the country to specialize in the intensive use of factors of production in which it is abundant in. According to Oatley (2011) such a division of labor is occurring in the global economy where, "each country produces goods in which it has a comparative advantage and sheds industries in which it has a comparative disadvantage." Furthermore, there are four emerging tiers and these emerging tiers then have a consequent impact on the labor market.

Oatley's (2011) study found the following:

- The advanced industrialized countries hold a comparative advantage in capital and human capital-intensive goods…
- The Asian NICs, especially South Korea, Taiwan, Hong Kong and Singapore hold a comparative advantage in mature and standardized capital-intensive goods…
- The second wave of NICs, including Indonesia, Malaysia, Thailand, Mexico and Argentina, hold a

comparative advantage in labor-intensive goods such as apparel, footwear, and the assembly of finished goods from components.

- Other developing countries hold comparative advantages in land-intensive primary commodities such as fuel, minerals, and agricultural products.

Hahn & Narjoko (2011) in their study prepared for the Economic Research Institute for ASEAN and East Asia, provide us with a succinct definition of both globalization and labor markets. Hence, "Globalization in this study is broadly defined to include trade and foreign direct investment (FDI) liberalization, trade (exports and imports), international capital flows, outsourcing and traded intermediate goods while labor market outcomes are defined as wages and employment as well as volatility and dispersion of wages." (p.v)

As mentioned earlier one of the main critiques of globalization has been the inequality of wages. Hahn & Narioko (2011) in their study utilize the two standard models of international trade, *Heckscher-Ohlin* (H-O) theory and the Stolpher-Samuelson theorem to explain the two theories that have been put forward for this critique which are: trade and skilled biased technological progress. Hence, "International trade is expected to increase the relative wages of the skilled worker in a skilled-abundant country while decreasing it in a skill-scarce country. An alternative explanation is due to an increase in relative demand for skilled workers because of improvement in technology."

The consensus that has been derived from earlier studies is that technological progress rather than trade which is the principal cause for the increase in the inequality. This point is further elaborated on by Basu (2016) who asserts that" the deep global shifts that I am referring to here have to do with technological change and the resultant changes in the nature of the global markets." (p.657). Further analysis yields that

wage inequality does not always occur as predicted by the HO-Model. Therefore, "While trade liberalization increases the wage inequality in skill abundant developed countries and decreases it in skill-scarce developing countries, wage inequality in practice rises not only in developed countries but also in middle-income developing countries." (p.v)

Table 1
Wage as a share of GDP.

	1975	1995	2014
High income countries			
Australia	66.5%	58.0%	53.0%
Canada	60.6%	57.0%	55.1%
European Union (15 countries)	66.0%	57.6%	56.3%
Japan	77.3%	67.3%	59.6%
New Zealand	–	45.8%	46.1%
United States	61.4%	59.8%	57.0%
Emerging economies			
China	–	52.8%	47.0%[a]
Mexico	–	42.2%	36.0%
Russian Federation	–	40.8%	42.1%[a]
Turkey	–	41.2%	32.3%

Source: ILO (2014); European Commission Directorate General for Economic and Financial Affairs, Annual Macro Economic (AMECO) database; for China: ILO calculations based on data from the China Statistical Yearbook; for Russia: Lukyanova (in press) based on Rosstat.
Notes: Wage Bill is the adjusted labor income as a share of GDP at current price. The unadjusted labor income only includes compensation of employees, whereas the adjusted labor income share makes an adjustment to account for the self-employed as well. For China, the share is unadjusted. The Russian Federation's share excludes hidden wages and mixed income.
[a] Latest data available for China is 2011 and 2012 for the Russian Federation.

Notes: The table shows the decrease in wage as a share of GDP for both High Income Countries and Emerging Economies.

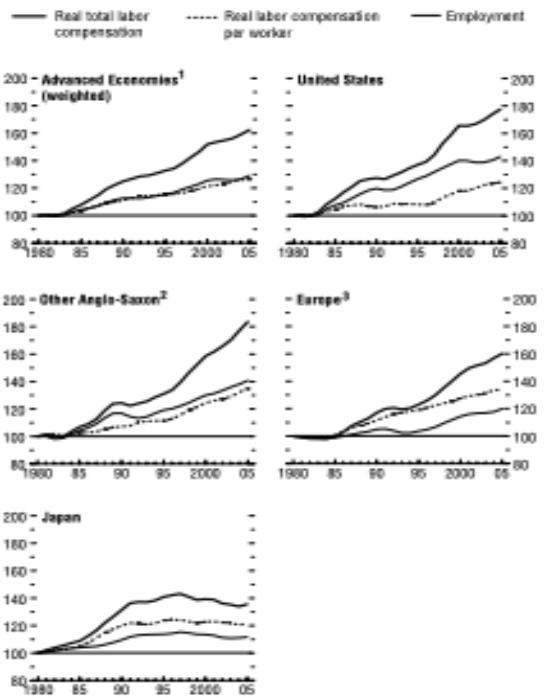
2.2. Impact on advanced industrial countries

A study prepared by Jamoutte & Tytle (2007) for the IMF explains that it is natural to assume that, as the exports from developing countries and emerging markets are intensive in labor especially unskilled labor, that the integration occurring in the world economy would exert a downward pressure on the wages (corrected for productivity) of workers in advanced economies. Our above analysis and data from Basu (2016), reinforces this analysis. Although when we proceed with further analysis, we do find that the

workers in advanced economies gain from trade. The main benefits occur due to enhanced productivity and trade, which is then termed, "(the size of the total pie) are larger than the negative effects on the share of this income that accrues to labor"(p.8). There are large amounts of literature that document the gains from productivity suggesting that these gains may indeed be large enough in terms of productivity and reduction in the overall cost of production.

Furthermore, when we analyze labor compensation as compared to reduction in wage share, we find a considerable increase occurring from the 1980's and a much more accelerated increase that occurred from the 1990's. Hence according to Jaumotte & Tytle (2007), "This trend reflects both employment growth and increases in real compensation per worker, with a stronger weight on employment in the Anglo Saxon and on real compensation per worker in Europe" (p.9). The gains in trade have favored skilled labor then unskilled labor where the growth has been slower.

Figure 9. Advanced Economies: Labor Compensation and Employment
(Index, 1980 = 100)



Sources: Haver Analytics; International Labor Organization, Labor Statistics Database; OECD, Employment and Labor Market Statistics, National Accounts Statistics, and STAN Industrial Database; United Nations, *National Accounts Statistics* (2004); and IMF staff calculations.

[1] Advanced economies include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, the United Kingdom, and the United States; weighted using series on GDP in U.S. dollars from the IMF's World Economic Outlook database.

[2] Anglo-Saxon economies include Australia, Canada, and the United Kingdom.

[3] Europe includes Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, and Sweden.

Notes: The graphical analysis shows the increase in labor compensation in advanced economies.

We see that our above presented analysis is of a historical nature representing a period from the 1980 to 2005. In more recent times there has been a renewed focus on research on the inequality especially in US. Wallace, Gauchat and Fullerton extend the earlier analysis from the 1980 and 1990 to present day times with a renewed focus on metropolitan

level earnings. Their approach is quite novel forming a link between inequality, the dynamics of globalization and labor market transformation. Thus according to Wallace, Gauchat & Fullerrton (2011) "we examine the impact of five measures of globalization (global capital, foreign direct investment, exports, foreign born non-citizens, and foreign-born citizens) and six measure of labor market transformation (deindustrialization, corporate restructuring, bureaucratic burden, casualization, bad jobs, and multiple job holding) on metropolitan level earnings of inequality of full-time, full-year workers 16 years and older"(p.1).

The study by Wallace, Gauchat & Fullerton (2011), produces some resounding results some in favor of globalization and some against. Hence, among the globalization factors that increase inequality are, "the presence of global capital, a large export sector and high number of foreign-born non-citizens increase inequality" (p.17). On the other hand, factors that decrease inequality are, "high levels of foreign direct investment and foreign-born citizens"(p.17). Thus, similarly for labor market transformation variables, "corporate restructuring, bureaucratic burden, casualization, and bad jobs increase inequality; deindustrialization has an unexpected but interpretable, negative effect on earnings inequality, and multiple job holding reduces earning inequality"(p.17).

Table 4
Predicted percentage change in Atkinson inequality measures at $e = .05$, $e = 1.0$, $e = 2.0$, $e = 3.0$ due to globalization and labor market transformation variables for 276 MSAs, total, by region, and by population of MSA.

		e=.05				e = 1.0				e = 2.0				e = 3.0			
	N	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
Total																	
All MSAs	276	18.62	4.62	7.42	36.20	15.02	4.26	3.19	32.17	10.94	3.08	−2.26	22.47	5.31	1.98	−4.15	11.0
Region																	
New England	11	14.63	2.33	12.82	20.23	10.98	2.46	8.51	16.95	7.11	2.25	4.37	11.13	3.21	2.17	−.15	5.82
Middle Atlantic	24	16.23	3.57	11.97	27.75	12.88	3.41	8.86	23.33	8.85	2.45	4.74	15.56	3.72	1.55	.39	7.63
East North Central	43	16.04	2.82	11.53	24.31	12.71	2.82	8.38	21.91	9.95	2.20	6.70	16.71	5.87	1.64	2.01	10.30
West North Central	27	16.09	2.22	11.86	21.95	12.11	2.03	8.03	16.81	9.58	1.48	6.13	12.68	6.26	1.17	4.34	8.09
South Atlantic	56	18.20	4.33	9.54	31.48	15.09	3.85	7.42	26.36	10.69	2.74	5.49	19.64	4.18	1.95	−4.15	9.47
East South Central	24	18.30	2.61	13.28	23.03	15.22	2.52	10.29	20.00	11.57	2.06	7.86	15.07	5.27	1.11	3.09	7.27
West South Central	41	21.37	4.37	14.92	36.20	18.05	4.09	11.90	32.17	13.46	2.71	8.97	22.47	6.06	1.43	3.32	9.95
Mountain	23	22.76	5.08	13.45	34.35	18.01	4.65	9.80	27.24	12.76	3.39	5.85	20.39	6.37	1.88	1.97	11.00
West	27	22.41	5.07	7.42	30.57	17.65	4.85	3.19	25.46	11.85	3.78	−2.26	17.15	6.09	2.35	−3.92	9.04
F-ratio			15.648				14.530				12.983				11.989		
Degrees of Freedom			8, 267				8, 267				8, 267				8, 267		
Significance			p = .000				p = .000				p = .000				p = .000		
Eta squared			.319				.303				.280				.264		
Population																	
⩽150,000	75	17.31	3.75	9.54	32.34	13.69	3.42	7.42	27.07	10.38	2.55	5.49	19.19	5.51	1.64	1.08	8.80
150,000–299,999	72	18.45	4.76	11.53	36.20	14.74	4.41	8.03	32.17	10.81	3.17	5.06	22.47	5.44	1.95	.72	10.30
300,000–599,999	60	19.32	4.87	12.79	34.35	15.68	4.21	8.96	27.24	11.45	2.93	6.83	20.39	5.51	1.76	1.68	11.00
⩾600,000	69	19.60	4.86	7.42	30.57	16.17	4.63	3.19	26.38	11.23	3.56	−2.26	20.49	4.79	2.42	−4.15	9.95
F-ratio			3.640				4.867				1.610				2.188		
Degrees of Freedom			3, 272				3, 272				3, 272				3, 272		
Significance			p = .013				p = .003				p = .187				p = .090		
Eta squared			.039				.051				.017				.024		

Notes: The table shows the impact on inequality due to globalization and labor market variables.

2.3. Impact on developing countries

Since there is an abundant of datum and research talent available in advanced industrial nations much of the analysis on the impact of globalization usually occurs for such nations. Although this is not to say the analysis for developing nations is not available, but the frequency of this research is lower. Hahn & Narjoko (2011), in their study prepared for the Economic Research Institute of Asean and East Asia, study the impact of globalization on labor markets with a particular focus on developing countries such as; Vietnam, Malaysia, Thailand and Philippines. Evidence from the studies show that, "premium wage affects labor market outcomes and wage inequality (between skill and unskilled

workers) in the countries covered by research… Moreover, almost all of these evidences underline the importance of firm/plant characteristics in shaping the nature or direction of the impact" (p.v).

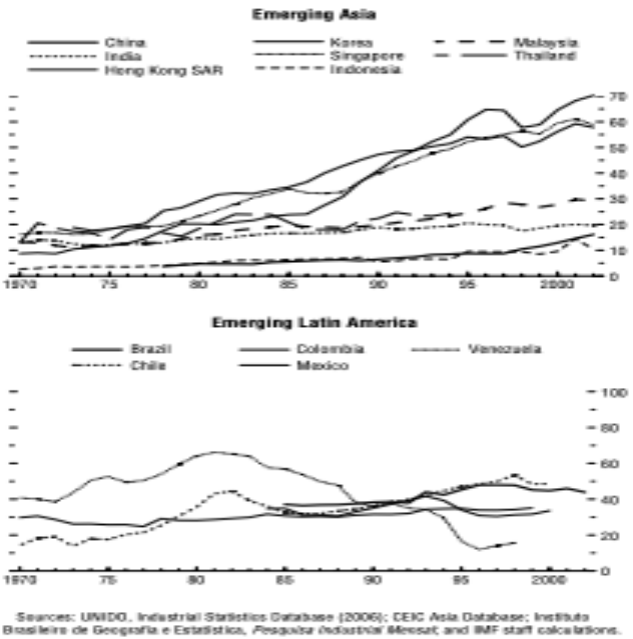
Hence, the study yields the results that, "tariff cuts and increase in trade rise the wage premium in… technology intensive (Vietnamese study). Meanwhile, the wage premium exists in Malaysia between exporters and non-exporters" (p.vi). Furthermore, a study in Thailand that examines the effects on engagement with international production networks and the reductions in tariffs on wage skill premium within firms yields the following results. "Engaging with production networks increases wage skill premium in skill-intensive firms while the tariff reduction is found to reduce the skill premium within firms" (p.vi).

A contrasting study on Indonesia and Philippines yields interesting results in the opposite direction then that of Vietnam or Thailand. Hence globalization is seen to have, "somehow smoothened its adverse impact on labor market outcomes" (p.vii). The study on Indonesia indicates that, "while there is evidence that firms pays higher wage for skilled workers, there is a declining pattern of relative (skilled to unskilled) workers over time"(p.vii). Furthermore, the on Philippines yields the results that, "the premium of skilled workers in terms of wage (wage skill premium) is found to have declined over the time, and it is attributed to the decline in trade protection"(p.vii).

It is quite normal to assume that globalization brings large benefits to developing countries especially in terms of wage convergence towards advance economies. Jaumotte & Tytell (2007) provide one of the earliest analysis on emerging market economies using data from the manufacturing sector. Their analysis indicates that there is indeed a convergence of wages particularly from Asia that have been converging towards those of the US. Asian countries which started

developing earlier have seen a large amount of convergence. Hence, "Studies confirm that both trade and emigration have contributed to rising incomes of nationals of developing countries, although the evidence on their impact on inequality is mixed" (p.7).

Figure 11. Catch-Up by Emerging Markets' Manufacturing Wages
(Percent of U.S. manufacturing wages in constant PPP dollars)



Sources: UNIDO, Industrial Statistics Database (2006); CEIC Asia Database; Instituto Brasileiro de Geografia e Estatística, *Pesquisa Industrial Mensal*; and IMF staff calculations.

Notes: The graphical analysis shows the increase in labor compensation in emerging markets.

Conclusion

The review of relevant data and literature although not exhaustive provides us with sufficient evidence of the impact on labor markets due to globalization. Opening to international trade allows countries to engage in the division of labor and hence in specialization. We also see that opening to trade and globalization has led to the emergence

of four tiers of nations, with each tier holding comparative advantage in the production of a specific good. Furthermore, we see that there has indeed been a significant impact on labor markets since globalization. There has been a decrease in the wage as a share of GDP in both high-income countries as well as emerging countries although this decrease has been accompanied by an increase in labor compensation. Further investigation has revealed that one of the main problems that have arisen due to globalization is inequality. A study focused on metropolitan areas has revealed the factors of globalization and labor markets that impact inequality.

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2 St. Thomas Aquinas and the development of natural law in economic thought

Introduction

First and foremost, the Su*mma Theologia* is a work of theology and the philosophy of St. Thomas is unique in itself with St. Thomas Aquinas being the philosopher of creation (McDermott, 1989). Albeit unfinished the text was written over the course of seven years and it was soon to become the accepted text for the Catholic Church and even to this day and age known as a unified comprehensive theology in Christian history. It was not the first text that was written by St. Thomas Aquinas, and hence, other prominent works include the *Scriptum*, a commentary on the book of *Sentences, Summa Contra Gentiles* which is by many described as a summary of Catholic theology, the *Catena a urea* which is described as a line by line commentary on the four Gospels and finally the monumental work we all know as the *Summa Theologia* (Slotemaker, & Zahnd, 2015).

The *Summa* is intricately divided into three parts and a further subdivision of two in the second part. Hence, the first part consists of two sections: the first section examines the nature of God, the second section the procession of creatures from God (Slotemaker, & Zahnd, 2015). Furthermore, the treatise on God is divided into a "discussion of the divine nature according to the unity of the divine essence and according to the distinction of persons" (Slotemaker, & Zahnd, 2015). Throughout the *Summa* we see the infusion of the Aristotelian framework and this is a departure from the earlier works of Lombard in the *Sentences*.

Hence, in the first part of the *Summa*, God and creatures are examined and the second and third partexamine the return of rational creatures to God as their end. As stated earlier the second part of the *Summa* is divided into two parts dealing with the movement to God by human acts 'in general' and hence, *prima secundae*and 'in particular' and hence, *secunda secundae.* In context here by 'general' Thomas means the nature of happiness, human acts, and their intrinsic and extrinsic principles. By 'particular' Thomas means the nature of theological and cardinal virtues (Slotemaker, & Zahnd, 2015). The third part of the Summa provides for an explanation of Jesus Christ who then being both God and human provides human beings a return to God as their end. Furthermore, the third part of the Summa concludes with a discussion of the sacraments in general (Slotemaker, & Zahnd, 2015).

The division of the second part into 'general' and 'particular' are quite similar to Aristotle's argument in Rhetoric and hence, aside from 'particular' laws that each people have set up for themselves, there is a 'common law' or 'higher law' that is according to nature (McDermett, 1989). When compared to the *Sentences* and the *Scriptum* the divergence is then understood not as Neoplatonic but as Aristotelianism (McDermett, 1989). Thomas adopts

Aristotelian methodology and rejects Lombard's ordering of theology which initially followed from Augustine. Aristotelian methodology is evident in the writing of Thomas and hence, in the first part of the *Summa* known as the 'Treatise on God", Aquinas presents five proofs that God exists. The Aristotelian doctrine of the *four causes*: form and matter, agent and goal underlie the formulation of these five proofs for God's existence (McDermett, 1989). Aristotle argues that human knowledge progresses from what is best known (eg: through the senses) to that which is less known (e.g: by means of complex reasoning) (McDermett, 1989).

Even though Thomas uses Aristotle's methodology throughout the *Summa*, there is a subtle and marked difference that allows Thomas to harmonize the Christian concept of creation and the Greek concept of the natural world. For both Aristotle and Thomas all realization of form needs an agent. For Aristotle the emphasis of reality is the end-point of some process of change. Thomas seeks to find God in everything and therefore thinks even of the state of actual being resulting from such a process as itself a realization that must be accompanied by some agency. For Aristotle natural things differ from artificialthings in having an internal form, and artificial things depend on a form external to them but internal to the artificer that produces them. Whereas Thomas says that both kinds of things receive their form from external agents, but a natural thing receives the form by which itselfexists and an artificial thing receives a form under which something else exists (McDermett, 1989).

Further evidence of Thomas and his reasoning to find God in everything arises from the interpretation of the state of realization. For Aristotle this state of realization is termed as *energia* or actuality, and hence the word stresses a state that was only previously possible and is now present. Thomas terms the state of realization as *actus*, the word

further stresses that the presence of the state is not only the being of something but the action of some other thing, the doing of an agent and hence, God. This line of reasoning leads to the argument that; since all being is doing and if the doing itself constitutes to an environmentally favored realization or achievement of an otherwise merely possible agency, then as realization it too needs a doer: the first agent's doing must itself be the doing of a second agent. This argument continues on but not towards *ad infinitum* as in that case there would be no realization in the first place. The argument continues and hence, *so on* until we come to a doing that does not have to achieve favor from an environment but already and eternally is doing. Hence, every other being, every other doing must be this being's doing (agent) and hence, this being is that *'all men call God'*. Therefore, through this argument Thomas moves to articulate his five reasons for the existence of God (McDermett, 1989).

Discussion

2.1. The life and times of St. Thomas Aquinas and acholasticism

Even though St. Thomas Aquinas was first and foremost a theologian during the Middle Ages, *Summa Theologica* provides many narratives on the state of the existing medieval economy. St. Thomas Aquinas and his use of 'reason' gave rise to many an important insight into the economic concepts such as; natural law, private property, just price and usury (Murray, 2006). Hence, Thomas who built on the system of Aristotle, the concept of natural law, Christian theology, and even early Muslim philosophers was able to provide for a synthesis of philosophy, theology and sciences of man in a much recognized philosophical position called Thomism (Rothbard, 2006).

A towering intellectual figure during the Middle Ages and to present, St. Thomas Aquinas was a scholar steeped into a theological education from a very early age. Born in an aristocratic Italian family in the kingdom of Naples, he studied with the Benedictines, at the University of Naples, joined the Dominican Order, moving to study at Cologne and Paris and under his most revered teacher Albert the Great. Thomas took his doctorates at the University of Paris and started to teach at Paris and other Universities in Europe. The prominent theories of just price are said to have started with the studies of Thomas Aquinas who was already steeped into a rich canonist, Romanist and theological tradition. Following in the tradition of the scholastics who were in themselves sophisticated thinkers and social economist, favoring capitalism, common market price and just price with the exception of usury, we indeed find authoritative statements regarding these topics in the *Summa*. (Rothbard, 2006).

St. Thomas Aquinas is further known for his defense of merchant activities and hence, defending the profits of the merchants in buying goods where they are abundant and cheap and then transporting and selling them in place where they are scarce. Furthermore, in contrast to Aristotle, St. Thomas Aquinas's position on the merchants was highly favorable. Therefore, mercantilist profit he declared was a stipend for the merchant and a reward for the risk of transportation. In accordance with the prevailing medieval thought, the merchants trade was not regarded as sin. Thomas went as far as to say that the merchants performed an important service in transporting goods from where they are abundant to where they are scarce. Thomas also elaborated on the mutual advantage of buying and selling (Rothbard, 2006).

One of the main themes in economic thought during the time of the Middle Ages was the prohibition of usury.

Thomas was not the one for usury and even though the prevailing thought during that time was to soften the restrictions on usury Thomas was one to tighten these restrictions. Although even though he tightened the usury restrictions at the same time he strengthened the tradition of investments in a partnership (societas). Thomas was also keen on private to communal property and resource ownership. Private property is described as a necessary feature of man's earthly stage and the best guarantee to a peaceful and orderly society, providing for the care and efficient use of property (Rothbard, 2006).

Thomas was also keen on the developing Roman law and in particular the law theory of acquisition where he anticipated John Locke and thus grounded the right of original acquisition of property on two basic factors: labor and occupation. Furthermore, establishing the initial right of each person over his own self, 'proprietary right over himself' which in itself is based on the capacity of man a rational being. The 'labor theory' of value proposed by Thomas is unique in itself defining labor as the expenditure of human energy and not working for wage and labor being a dictate of positive natural and divine law. And hence Thomas's view on labor are in contrast to those of Aristotle (Rothbard, 2006).

For Aristotle, the concepts of *oikos* (the domestic community), *polis* (the political community) together with natural chrematistics (acquisitive art) constitute to living well in accordance with justice as the 'complete virtue'. On the other hand, Christian *ethos* regards all human acts, internal and external of Aristotle's complete system (*polis*, *oikos* and chrematistics) to be oriented towards an ultimate purpose (*beutitodo)*. Hence, in St Thomas's view eternal law is essential to harmonizing the necessity of irrational being, and hence, loving God's actions which is termed as 'divine law', natural law, and the contingency of 'human things'

provides the economy with sufficient guidance (Cendejas, 2017).

It follows that according to St. Thomas Aquinas natural law provides the framework for the underpinning of the framework for economics and constitutes as one of his main contribution. Following the Aristotelian framework, St. Thomas Aquinas established in the Christian world the philosophy of natural, a philosophy which in accordance with human reason is able to arrive at the most basic of truths of the universe. Hence, human reason is able to grasp the reality of the universeand of natural law of discoverable entities. Human reason could understand and know the nature of world and it could therefore know the proper ethics for mankind, allowing ethics to discerned through reason (Rothbard, 2006).

2.2. The development of natural law through the ages

There is a necessary connection between law and morality. The principles of the natural law are binding by nature: no beings could share our distinctly rational human nature yet fail to be bound by these principles. All human beings possess a basic knowledge of the principles of the natural law, which are universal, objective, and eternal (Aquinas, ST IaIIae 94, 4).

2.3. Aquinas and natural law

As we have seen St. Thomas Aquinas built his positions on t by the Aristotelian and Greek use of reason, logic and sense experience. Even though there are subtle differences in their respective positions, with Aquinas finding God in everything, it is this systematic use of reasoning that evolved into a system of natural law. Aquinas in his "Treatsie of Law", expounded in the First Part of the Part Two of the *Summa Theologia* argues that to be moral one must follow

"natural law". From the natural law St. Thomas Aquinas does not mean the laws of nature such as gravity and such, but the moral law that follows from the nature of human beings. Hence, it follows that natural law is the subset of eternal law – the law by which God governs the entire universe. According to St. Thomas Aquinas God directs all creatures by instilling in them natural inclinations, although humans are subject to eternal law in a special way and hence, unlike other material creatures, humans have reason and free will, which enables them to decide on how to fulfill their natural tendencies (Abel, 2012).

Hence, St. Thomas Aquinas presents six articles on Classical Natural Law, which form the basis of his system;

- **Question 91. On different kinds of law**
  - *First Article. Is There an Eternal Law?* – …Law is a dictate of practical reason (*practical reason* as used to direct practical activity. Practical reason is contrasted with *theoretical reason*; reason directed toward knowing the truth for its own sake). Hence, supposing that God's providence rules world…his reason evidently governs the entire community of the universe, so the plan of governance of the world existing in God as the rules of the universe has the nature of law. And since God's reason conceives eternally, and not temporally, we need to say that such law is eternal… (Abel, 2012).
  - *Second Article. Is There Natural Law Within Us?* – … Law is a rule or measure and can belong to things in two ways: in one way to those who rule and measure; in a second way to those ruled and measured. As eternal law rules and measures and everything is subject to God's providence… and so everything shares in some way in the eternal law.

Hence, the rational beings' participation in eternal law is termed as natural law… (Abel, 2012).

- **Question 94. On the natural law**

  ○*Second Article. Does the Natural Law Include Several Precepts or Only One? …* The first principle in practical reasons is one based on the nature of good, namely, that good is what all things seek. Therefore, the first precept of the natural law is that we should do and seek and shun evil. And all the other precepts of the natural law are based on that precept…(Abel, 2012)

  ○ *Fourth Article. Is the Natural Law the Same for All Human Beings? – …*Therefore, we should say that the natural law regarding 'general' fist principles is the same for all persons both as to their rectitude and as to knowledge of them. The natural law regarding particulars, which are conclusions from the general principles is for the most part the same for all persons both as to its rectitude and as to knowledge of it. Nonetheless it can be wanting in a few cases, as to the rectitude the natural law can be wanting because of particular obstacles and as to knowledge of natural law, the law can be wanting because emotions or evil habituations or evil natural dispositions has perverted reason… (Abel, 2012).

  ○ *Fifth Article. Can the Natural Law Vary?– …* The mutability of natural law is understood in two ways. Hence, one way to understand is by the things being added to it. In this way the change is acceptable as both divine law and human laws add many a beneficial thing to human life. The second way to understand the mutability of natural law is through subtraction and that things previously subject to law cease to be so and hence natural law becomes immutable to its first principles… (Abel, 2012).

> ○*Sixth Article. Can the Natural Law be Excised from the Heart of Human Beings? –…* Hence, there belong to natural law, primarily very general precepts, that everyone knows; and more particular, secondary precepts, which are proximate conclusion from first principles. The general principles cannot be excised from the hearts of human beings, but the natural law is wiped out regarding particular actions insofar as desire or emotions prevent reason from applying general principles to particular actions… (Abel, 2012).

2.4. Natural law and the enlightenment era

The development of natural law did not stop with St. Thomas Aquinas. The system has continued to develop through the Middle Ages into the Enlightenment Era and into Modern Day Times. Perhaps one of the most influential scholars during the Middle Ages to take up the topic of natural law was Gregory of Remini (d.1358). A champion of essentialism, reason and natural law, he argued against the arguments of nominalism presented by the Oxford philosopher, William of Ockham. Nominalism had gained a favorable position during these times casting a shadow of doubt over natural law and reason through the argument that only God's will discernible by faith and revelation could lead truth laws and ethics. Hence, the position of nominalism was one of the key reasons for the development of skepticism and positivism (Rothbard, 2006).

Arguing against the position of nominalism, Gregory of Rimini carved out a position of an all-out rationalist position of natural law, a position that was taken up again almost three centuries later by Hugo Grotius. Therefore, the position held that, even if God did not exist, the system of natural law would be given to us by the dictates of right reason, and the violation of which would still be a sin. The scholastics were the pioneers of the natural law and natural

rights theory and hence, their influence was felt heavily in the writings of the Enlightenment philosophers such John Locke and Hugo Grotius. Even Locke's theory of natural rights was deeply embedded in the scholastic natural law tradition and John Locke transformed the earlier notions of natural law into clear individualistic concepts of the natural rights of every individual human being (Rothbard, 2006).

The natural law of the enlightenment era evolved into a system where the individual rights of person and property were embedded in a set of natural laws. These laws were worked out by the creator and were clearly discoverable in the light of human reason. Furthermore, Hugo Grotius expanded on the Thomist system focusing on the Plato from Euthyphro: did God love the good because it was in fact good, or is something good because God loves it? Hence, the former being the answer of those believing in objective truth and objective ethics and that something is good or bad in accordance with the objective laws of nature and reality. The latter has been the answer of those who believe in no objective rights or ethics to exist and that only the purely arbitrary will of God as expressed by revelation can make things good or bad. For Grotious the answer was the definitive statement of the objectivist, rationalist position and hence, natural laws are discoverable by human reason. Furthermore, Grotious added to his system, Newton's vision of the world as set of harmonious, precisely if not mechanically interacting natural laws (Rothbard, 2006).

Even the French utility theorist during the 18thcentury based their economic systems on a natural law framework. The Abbe Ferdinando Galiani a contemporary of Turgot made clear in *Della Moneta* that his analysis was embedded in the conceptual framework of natural law. For Galiani natural laws have a universal validity in economic affairs and any action defying the order of nature will be certain to fail. The academic economist in Scotland based their

teachings on the groundwork of natural law, following the pre and post medieval Spanish scholastic method, and economic or political economy as it was known at that time was a course that was a subset of a course in moral philosophy. Professor Gershom Carmichael of the Scottish enlightenment bought the studies of natural and international law teachings of Grotius and Samuel, Baron von Pufendrof to Britain and this tradition was continued by his well-known follower Adam Smith (Rothbard, 2006).

Natural Law has developed tremendously in modern day times. There many notable legal philosophers who have worked within the tradition of St. Thomas Aquinas, ethics and meta-ethics, as well as legal philosopher who have expounded on the position of positive law. Some prominent names that one should be familiar with when exploring the position of natural law are; Martin Luther King Jr, Jacques Maritain, John Finnis, Lon Fuller and Ronald Dworkin to name a few. The prominent exchange between Lon Fuller and H.L.A Hart (Hart located the boundaries between legal positivism and natural law theory… and that if law was separate from its moral merit) (Bix, 2012).

Most of the advances in natural law in modern day times have arisen due to legal positivism. Furthermore, the approach to natural law is different than in the Enlightenment Age and the Classical Age of Natural Law. The classical theorist was more inclined towards being moral or political theorist. Hence, the main question that they asked were; how does one act morally? What is one's moral obligations as a citizen within a state or as a state official? And what are the limits of legitimate (that is, moral) governmental action? In contrast modern theorist who work within the tradition of natural law are now social and legal theorist and their primary dispute is then with approaches to explaining or understanding society and law (Bix, 2012).

The development of natural law has then branched out to two different types of natural – natural law as moral/political theory and natural law as legal/social theory, both of them connected at a basic level giving a teleological purpose. The voluntarist forms of traditional natural law as divine commands creating moral standard in some form of Thomistic natural law, an ideal towards which humans by their nature strive. Hence, according to Ronald Dworkin, the sense to which conventional legal rules are approximation of what law really is or what law must try to be according to Lon Fuller (Bix, 2012).

Conclusion

3.1. Natural law and economics

Since, natural law is based on reason being the preferred method of Greek philosophers, one may surmise that since the ancient times economics has been embedded in natural law. In the works of St. Thomas Aquinas, we see many an authoritative statement regarding the workings of the economy, such as, private property, usury law and partnerships and hence according to the St. Thomas Aquinas, eternal law, divine law and natural law provides the economy with sufficient guidance. The development of economics through the Enlightenment Age has also been grounded in a natural law framework with strong proponents such as Adam Smith. Even though Pareto championed a positive methodology he has provided us with as Ludwig puts it a deathless anecdote for the defense of natural economic law. And as we enter more modern times, we see a sharp contrast between utilitarian ethics with the ethics of natural law, eloquently contrasted by John Wild (Rothbard, 2006).

On approaching the topic of natural law and modern economic theory, at the beginning one faces a dilemma. Modern economics seems very much to identify itself with

physical sciences and hence, a fusion of such a science seems to be impossible with moral philosophy and religion. Although upon closer inspection such a dialogue on a moral framework of economics maybe possible as both the disciplines share common ground. Hence, the following two premises are proposed regarding the common ground, [1] Both areas of study accept the existence of anenduring and universal human nature that can be studies systematically and [2] both areas of study accept the existence of human agency and human freedom (Moreno-Riano, 2005).

Even though natural law and economics share a common ground their respective anthropologies are in complete contrast to each other. Thus, according to natural law, human beings are moral creatures who possess knowledge of the various goods of human nature. The natural law vision is a community that desires the moral, intellectual and material flourishing of individuals as well as other. On the other hand, the anthropology of modern economic theory, although agreeing on the human agency, nature and freedom, considers the dimension of self as primary with any other conditions being tertiary at best. For a natural law theorist, the modern economic theory characterizes human nature composed of agency and freedom for the sake of self-preservation. This anthropology has become mainstream with the writers such as Niccolo Machiavelli and Thomas Hobbes who famously denied the existence of a *summumbonum* and if such a *summumbonum* existed it was directed towards a limitless appetite for everything (Moreno-Riano, 2005). Hence, natural law thinking has the potential to provide a powerful corrective to the distortion of values in economics. Although a problem in methodology does occur as natural-law philosophy is normative, where economics as a discipline avoids normative judgements and the creation of norm, instead relying on the analysis of relationships based on empirical data. Economist shy away

from making judgements of regarding morality and rely on the assumption that individuals will define their own goods and preferences. Therefore, the task of the economist is to calculate the consequences of people acting to attain certain goods and preferences (Gregg, & James, 2012).

Both disciplines have their set of problems in methodology, natural law philosophy encounters the problem due to a lack of validity, which can be corrected through the data provided from other social sciences such as psychology. Furthermore, for natural law theorist the market does not behave like they 'hold' it should while for economist the markets do not behave like they 'think' it should. Furthermore, natural law theorist hold concepts of justice are 'eternally' valid, while economist observe that utility maybe a short-term concept. The concepts of short-term happiness and the long-term state are distinguished in Latin as *felix* and *beatus*respectively. One of the most basic and contribution of natural law to economics is the realization of human freedom. A strong debate in the past thirty years had produced empirical fact that economic and political freedom produces gains in well-being. At the same time religious practice is desirable and has been demonstrated empirically to produce gains in both income and wealth. But the empirical augmentation maybe destructive and distorted when we view, freedom and religious practice as instrumental. Thus, it may be true that freedom, love and religion are a powerful tool to combat poverty, they do that because of their intrinsic value and as an expression to what it truly means to be human. Therefore, the natural law tradition provides a powerful insistence of a hierarchy of value in which the intrinsic value is recognized rather than, freedom, love and religion being regarded as instrumental tools (Gregg, & James, 2012).

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3 International financial credit crises; Lessons from Canada

Introduction

In the year 2008 the United States experienced a credit crisis that caused spillovers throughout the international credit market. The root cause that has been identified and that led to the credit crises, were substantial defaults on subprime mortgages. Consequently, this led to a chain of events such as a complete stop in housing development which in turn caused reduced spending and unemployment. Furthermore, the financial institutions that initially held the mortgages and the securities representing the mortgages reported huge losses. At the same time the financial institutions in the UK suffered major losses as well as they had held substantial investmentsin subprime mortgages. Institutions from both Europe and Asia were purchasers of the sub-prime mortgages that originated in the US and UK. Hence, due to the integrated nature of international financial markets, the weakening of the U.S. and U.K. economies set of a chain reaction and a contagion affect that impacted the

economies of other countries. Therefore, there was a reduction in imports, a reduction in the availability of credit and hence a tightening in the credit market for MNC's (Madura, 2016).

The evidence that has come across in recent years is that Canada even though impacted by the financial credit crises was able to weather the crises much better than many other countries. No financial institutions in Canada failed and there were no bailouts of insolvent firms. The success of the Canadian economy to weather the financial crises when compared to the US is attributed to how the Canadian regulatory framework differs from that of the U.S and also the its size. In contrast to the U.S. that allowed a weak fragmented system to develop and hence, small (less) stable banks, along with a shadow banking system of less regulated securities markets, investment banks and money market funds, overseen by competing regulators. Canada setup a concentrated banking system that controlled mortgage lending and investment banking under the watchful eye of a single, strong regulator (Haltom, 2013).

Literature review

2.1. Comparing the US and Canadian banking system

2008 is not the first time that the Canadian Banking System was able to weather a financial crisis. The Canadian system had remained unsupervised till the 1980's and furthermore, in a period where both the US and Canadian system was unregulated, 1830's to 1913 –America experienced as many as eight systematic banking crises where Canada suffered only two short lived episodes. Hence, the evidence suggests that regulations alone cannot explain Canada's stability in the banking sector suggesting that perhaps Canada has found a way to balance the

provision of risk with the containment of risk (Haltom, 2013).

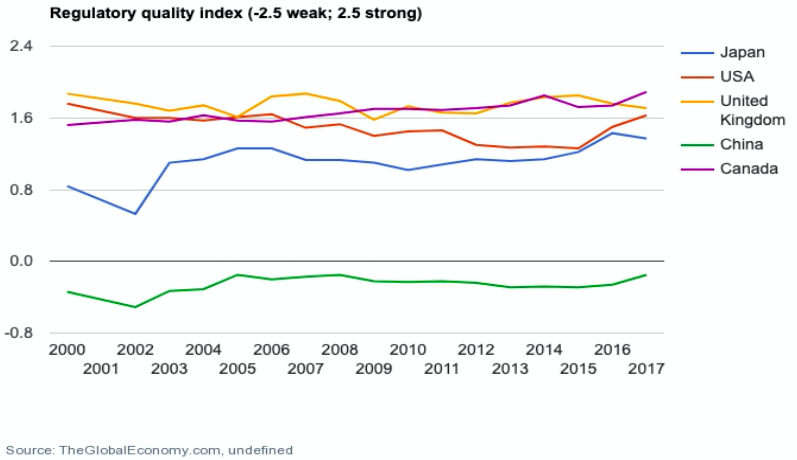

Figure 1. *Regulatory quality index: Value 2000-2012.*
Source: [Retrieved from].

The main difference between the financial system of Canada and US is as to how the services are provided. The U.S. has a very fragmented financial system containing almost 7,000 chartered banks and a legion of regulators. Hence, depending on how the bank is charted an American bank can be regulated by the Fed, the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency. In more recent times and especially since the financial crises of 2008, the umbrella groups such as Financial Stability Oversight Council (2010), have been created (Rashid, 2019). On the other hand, Canada has 80 banks out of which 6 of them hold the majority of the market share. Furthermore, Canada has one overarching financial regulator, the Office of the Superintendent of Financial Institutions (OSFI). The securities market is regulated by Canada's 13 provincial and territorial government, but their regulations are mostly in harmony with each other.

Although it may be argued that the size of the banking sector in the US makes it nigh impossible to completely regulate, and that regulation and risk averse behavior may indeed stem the tide of innovation, and investment that the US banking system is known for and which the Canadian banking system seems to lack (Rashid, 2019; Madura, 2016).

2.2. GDP and GDP growth rate

When considering the impact of the financial credit crises on Canada, a comparison of the impact on the US produces valuable insights. We look at the specific data points that helps us gauge the impact of credit crises on Canada as well as to providing us insights as to why the recession occurred. Therefore, data points such as GDP growth rate, currency value, exports, building permits, stock market index, foreign direct investment, industrial production, new orders and bankruptcies are assessed.

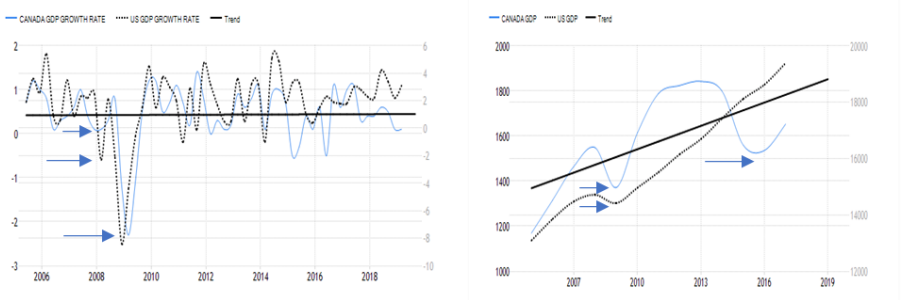

Figure 2. *GDP and GDP Growth Rate, Canada and US: Value 2006-2019.*

Source: [Retrieved from].

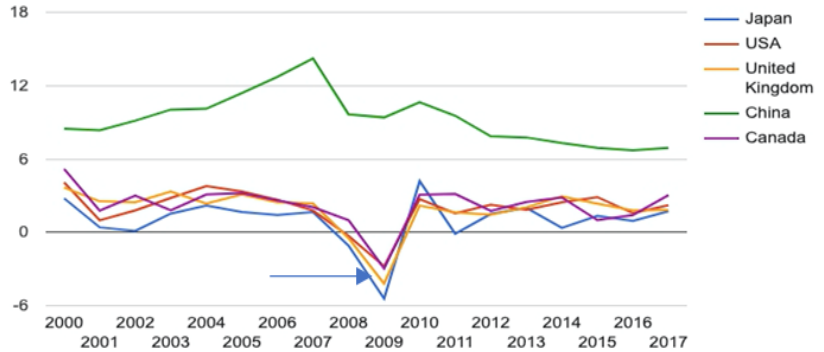

Figure 3. *Economic Growth: the rate of change of real GDP: Value 2000-2017.*
Source: [Retrieved from].

We begin with an assessment of the GDP growth rate during the years of the financial crises. The GDP growth rate remains one of the most important indicators of the economic health of the country. Hence, when the economyis expanding the GDP growth rate is positive and when the GDP growth rate is negative and persistent the economy is in a recession. The data for both the US and Canada shows a significant decline in the GDP growth rate during the years of 2008-2010, with the GDP growth rate almost hovering around a -3%. Both the US and Canada see a recovery of their GDP growth rate to a positive number towards the end of 2009 and the start of 2010. Similiarly the overall GDP of both countries shows a significant fall during the years of 2007-2010 with both the countries showing an upward trend toward the end of 2009 and the start of 2010.

2.3. Currency value and import export trends

Moving on to the currency value of both US and Canada we examine the trend during the years of the Great Recession. Hence, the data points to a significant decrease of both the Canadian Dollar and the US Dollar in the year of 2008. Furthermore, it is not until the year 2016, that the

currency value of both countries shows a steady trend and a currency value above the pre-recession levels.

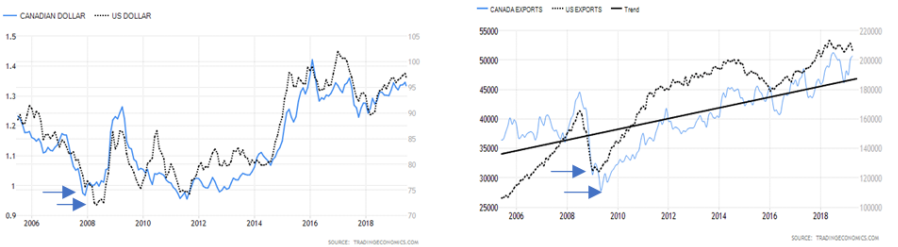

Figure 4. *Canadian Dollar and Canadian and US Exports: Value 2006-2019.*

Source: [Retrieved from].

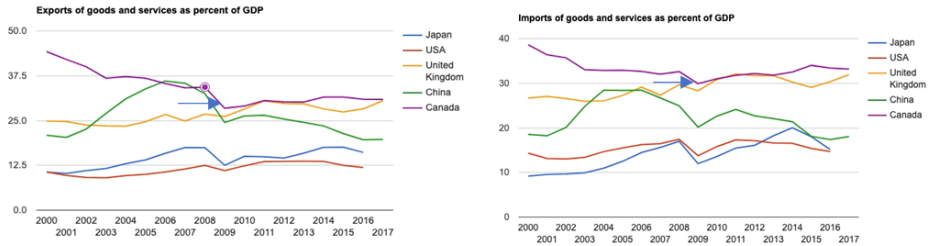

Figure 5. *Export and Import of Goods and Services as a percent of GDP: Value 2000-2017.*

Source: [Retrieved from].

When combined with an analysis of both the US and Canadian Exports, we are provided insights as to why both the US and Canadian Dollar experienced a depreciation during the years of the Great Recession. One of the principal reasons why a currency depreciates is due to a lack of demand of the currency in the market caused by a reduced demand for the country's exports. Hence, the data for both the US and Canadian exports shows a significant decline between the years of 2008-2010. As exports are a major component of the GDP the significant decrease in exports during the years of the Great Recession explains the

reduction in the GDP value. Although it may be said that the fall in the Canadian dollar was a saving grace for Canada as it helped in making Canadian exports more affordable hence prompting a recovery.

2.4. Investments

Investments are a principal factor in the calculation of a country's GDP. Hence, our next step is to examine the investment components of the Canada's GDP. Since the root cause of the financial crises is in sub-prime mortgages and the housing market, we first examine the data relating to the issuance of housing permits in both the US and Canada. Housing constitutes to a fixed investment in the calculation of the GDP and is then an important factor determining over-all GDP and GDP growth. For the US we see a sharp decline in the issuance of housing permits starting from the year 2006.

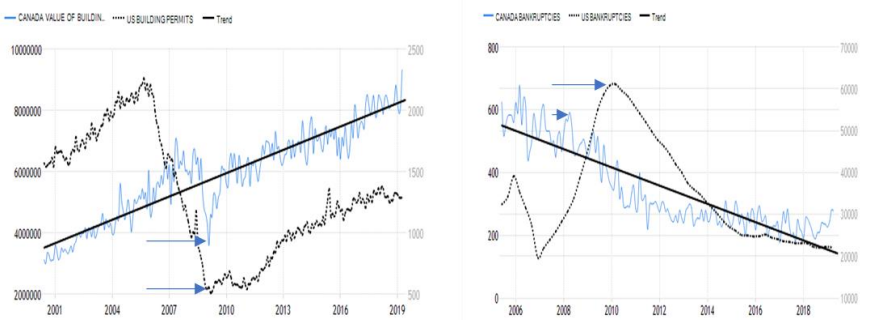

Figure 6. *Canada and US Building Permits and Canada and US Bankruptcies, Value 2006-2019.*
Source: [Retrieved from].

The initial figure between the years of 2004-2007 stands at approximately 9,000,000. Between 2007-2010 this figure has fallen to 2,000,000. For Canada in the years of 2007-2010, the high is around 7,000,000 while the low, coinciding with the fall in the US housing permits is far below the trend at

4,000,000. Such a sharp decline in the value of housing permits, signals a significant reduction in domestic capital investment. We alsoassess the bankruptcies during the years of the Great Recession. Hence, again comparing US and Canada data we find a sharp increase in US bankruptcies between the periods of 2006-2010, from a low of approximately 175 in 2007 to 600 in 2010. For Canada the bankruptcies hover around the trend line with a low of approximately 500 to a high of approximately 600 in the years of 2008-2010.

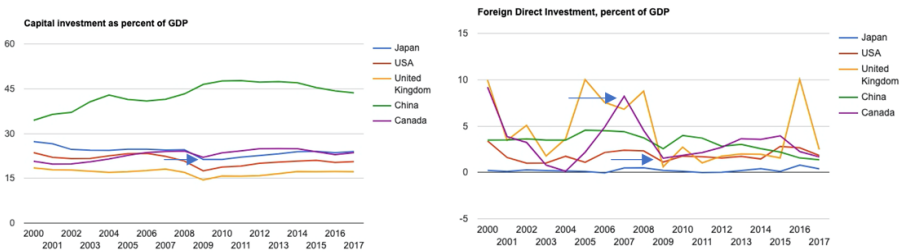

Figure 7. *Capital Investment and FDI as a percentage of GDP, Value 2000-2017.*

Source: [Retrieved from].

Further analysis into the investment component of the GDP reveals insightful facts. Consistent with our early analysis that there is a reduction in domestic investment, holds true when we look at data for Capital Investment as a percentage of GDP. For Canada, Capital Investment constitutes to 24.13% of the GDP in 2008 and declines to 22.02% of the GDP in 2009. Furthermore, analysis of Foreign Direct Investment (FDI), a component of international trade and investment reveals a significant reduction, from a high of 8.22% in 2007 to 4.53% in 2008 and a low of 1.53% in 2009.

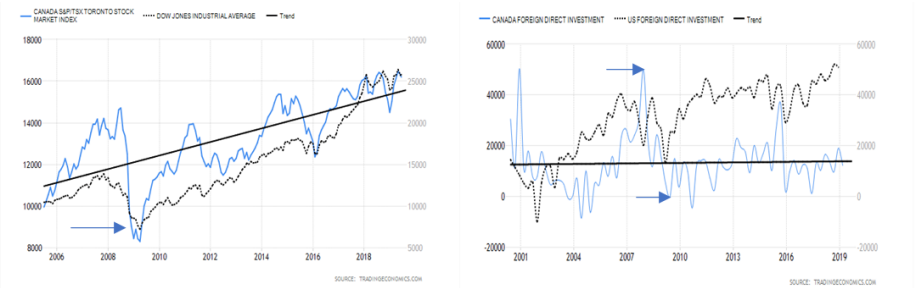

Figure 8. *Canada and US Stock Index and Canada and US FDI: Value 2006-2019.*
Source: [Retrieved from].

The reduction in FDI is then reflected in Canada's stock market index, Canada S&P/TSX Toronto Stock Market Index. Coinciding with decline of the US Dow Jones Industrial Average during the years 2008-2010, the Canadian Index falls from a high of 14000+ points to a low of 8000+ points. Canada's reliance on FDI to in 2007 stood at 8.22% of the GDP and hence FDI formed a significant portion of the GDP especially in 2007. The resultant decrease in FDI due to the international credit crises then definitely had an impact on the overall GDP and the GDP growth rate. Hence, it is reasonable to say that the Canadian companies experienced liquidity problems.

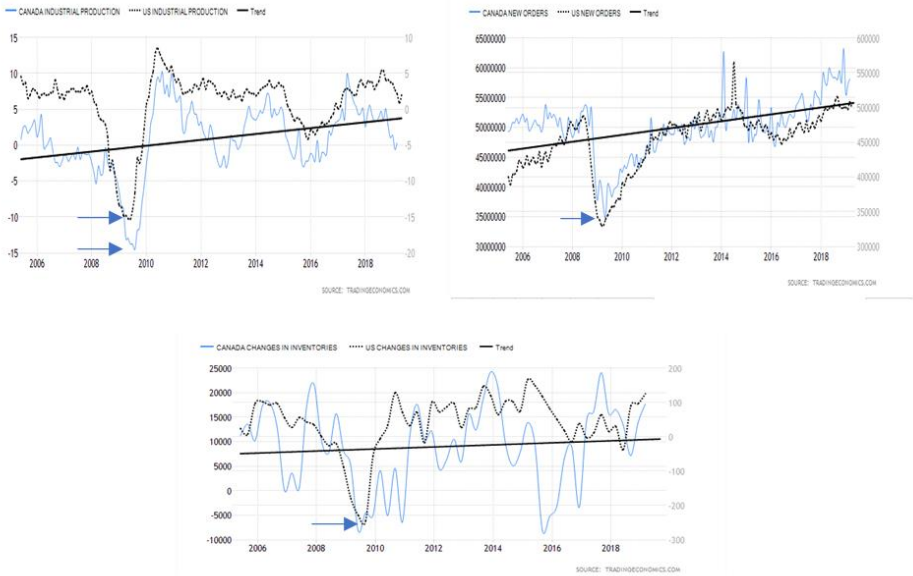

Figure 9. *Canada and US Industrial Production, New Orders and Changes in Inventory.*
Source: [Retrieved from].

When examining domestic investments, it is important to look at production data. Inventory investments include changes in the stock of raw material, parts and finished goods held by businesses. Upon examining the data for inventory levels during the years of the Great Recession we find that during the years 2008-2012 the change in inventory levels sees a sharp decline staying well below the trend-line. Furthermore, both Canadian Industrial Production and New Orders show a sharp decline between the years of 2008-2010.

2.5. Consumption & labor force participation

Another important component of the GDP and GDP growth rate is Consumption. Consumption measures the market value of all goods and services that are purchased by households. At the same time we also look at the Canadian Household Debt to GDP and Unemployment figures during

the years of the Great Recession. A fall in GDP and the GDP growth rate signals a reduction in consumption due to a reduction in wealth.

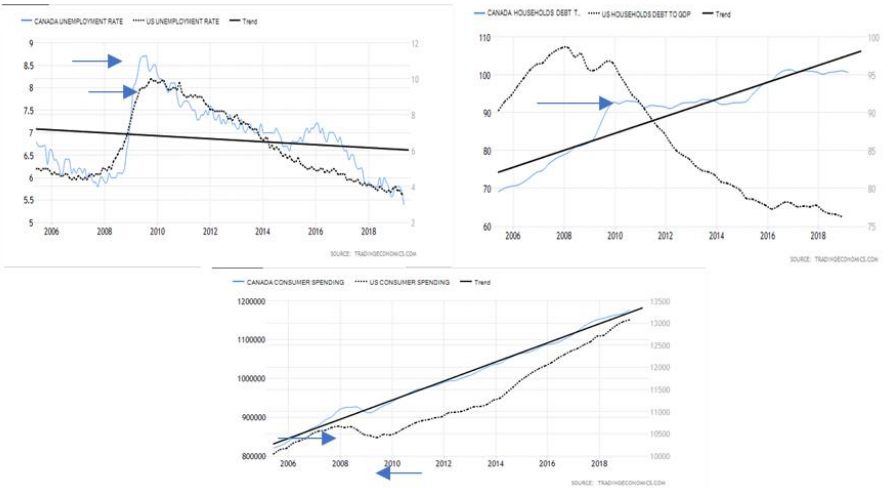

Figure 10. *Canada and US Unemployment, Household Debt to GDP and Consumer Spending: Value 2006-2019*
Source: [Retrieved from].

Furthermore, a fall in Investments and the consequent fall in the levels of Inventory, Production and New Orders signal a sharp decline in the Employment statistics of the country. This analysis is consistent with the data as we see a sharp increase in the Unemployment rate during the years of 2008-2010 with a peak of 8.5%+ for Canada. Furthermore, the Housing Debt for Canada shows a sharp increase well above the trend line during the years of 2008-2010. It is the early healthy position of the economy and the Household Debt ratio that enabled Canada to weather the financial crises even though there is a decline in Consumer Spending. The monetary and fiscal policy response during the credit crises has a further impact on Consumer Spending.

2.6. Monetary and fiscal policy

The financial crises prompted a policy response from many countries. A monetary policy response occurs when the central bank of a country uses the interest or inflation rate to control the money supply and the cost of borrowing. A fiscal policy response occurs when the government spending and the tax rates are used to influence economic conditions. During the period of the financial crises there was a concentrated response from the central banks of the major countries involved.

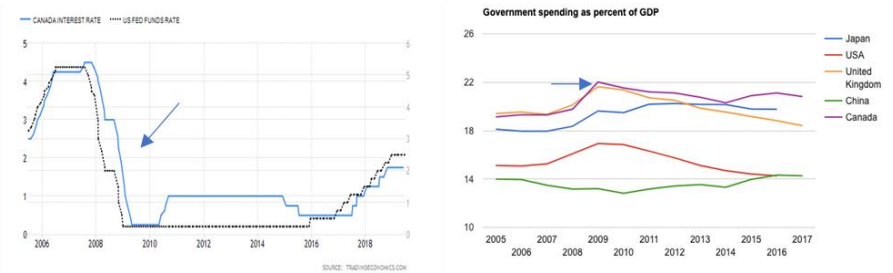

Figure 11. *Canada and US Interest Rate and Government Spending:Value 2006-2019*
Source: [Retrieved from].

Hence, we see a sharp reduction in interest rates as a coordinated response from both the US and Canadian central banks. Canada's interest rate stood at above 4%+ in 2008 although during the years of 2008-2010 it was reduced to a 0.25%. A reduction in interest rates facilitates investment and as our earlier analysis has shown during the time of the Great Recession the Canadian companies experienced a credit crunch due to a large decrease in FDI. At the same-time we see a large increase in government spending to almost a 22% of the GDP. An increase government spending increases aggregate demand, leading to an increase in production due to increase in consumption. The coordinated

use of monetary and fiscal policy leads to a path to economic recovery.

2.7. Impact on MNC's

The economic condition of the global economy as well as a domestic economy can have a significant impact on the valuation of an MNC.The following is the formal process of valuing a MNC receiving multiple currencies over multiple periods of time.

$$V = \sum_{t=1}^{n} \left\{ \frac{\sum_{j=1}^{m} [E(CF_{j,t}) \times E(S_{j,t})]}{(1+k)^t} \right\}$$

Where:

CF j,t = cash flow denominated in a particular currency.

SF j,t = exchange rate at which the MNC can convert the foreign to the domestic currency at the end of period t.

Hence, applying this model of valuation to MNC's based in Canada an engaged in trade with US yields interesting results. Therefore, an MNC based in Canada will be adversely impacted during the years of the Great Recession. This is due to the fact that US economic conditions weaken significantly during the Great Recession. The consumers in the US suffer a fall in their income and the unemployment rate increases sharply. The consumers now have less money to spend and their demand for the MNC products and in our case the demand for Canadian goods decrease in the US resulting in a reduction of cash flow for the MNC. This is reflected in our earlier analysis as we see a large decline in the export volume for Canada and a sharp decline in the import of Canadian good by the US. As Canadian based

MNC's experience a reduction in cash flows it will cause a reduction in workforce hours, higher levels of unemployment and a reduction in income of both workers and owners. Furthermore, exposure to exchange rate risk has a further impact on the valuation of an MNC. Hence, when the currency value of US dropped significantly during the Great Recession, the MNC's based in Canada saw a further reduction in their cashflow. The monetary and fiscal policy response to the Great Recession facilitates recovery for the MNC's. The reduction in interest rates facilitates the expansion and borrowing and aggregate demand stimulation increases consumer demand, consequently increasing production.

Conclusion

We start with the application of macroeconomics and international finance to access the international credit crises. We compare the US and Canadian banking system to ascertain as to why the Canadian system weathered the crises. GDP and GDP growth remain one of the most important economic indicators of the well-being of an economy. Hence, this is where we start and determine the fall in both the GDP and GDP growth rate during the Great Recession. We further analyze the individual components of GDP and hence import, and export data and currency values are analyzed, both of them showing a negative impact due to the fall in GDP. We take a close look at the investments and ascertain that there is indeed a large reduction in housing permits, an increase in bankruptcies, a reduction in capital investments, a reduction in FDI and consequently a fall in the stock market index. Consequently, the fall in consumption expenditure and rising rate of unemployment enforces our analysis. Therefore, we analyze the fiscal and monetary policy responses to the credit crises and find that both fiscal and monetary instruments are used to stem the

recession. The impact on MNC's are also analyzed and we ascertain that the credit crises negatively impact Canadian based MNC's due to reduction in cashflow as US imports decrease and a reduction in cash flow due to exchange rate fluctuations.

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4 Case analysis: Enron; Ethics, social responsibility, and ethical accounting as inferior goods?

Introduction

It would be putting it mildly to say that the end of the 19th century was definitely not a stable utopian turn of the century. Not only were international relations strained to an extreme, the underlying moral culture of the economy, gleeful in its flurry of technological advancement, crumbled on itself. The Asian Crises, terrorists' acts, and an 'irrationally exuberant' stock market resulted into a chain of events that causes ripples to present day times. Enron the energy market favorite became embroiled in a fraudulent controversy that shattered the consumer and business confidence in the economy. The government bailouts have resulted into controversial debates on accountability that have lasted the past two decades with numerous complicated financial regulations holding the current financial markets accountable (Rashid, 2019).

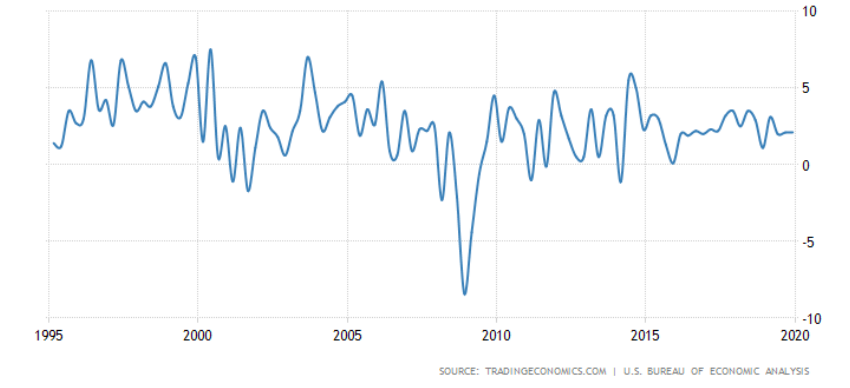

Figure 1. *GDP Growth Rate 1995-2020*
Source: Trading Economics; [Retrieved from].

Literature review

2.1. The Wall Street darling

Enron was born a merger between two gas pipeline companies in 1985, providing natural gas related goods and services throughout the US. By 2001 Enron was ranked a 7th largest 500 fortune company showing an exponential growth in revenue an increase from $31 billion to $100 billion between 1998-2000. In later years it was reported that the claimed $979 million net income that year was really $42 million. Furthermore, instead of the cash flow being positive a $3 billion, in reality it was a negative $154 million.

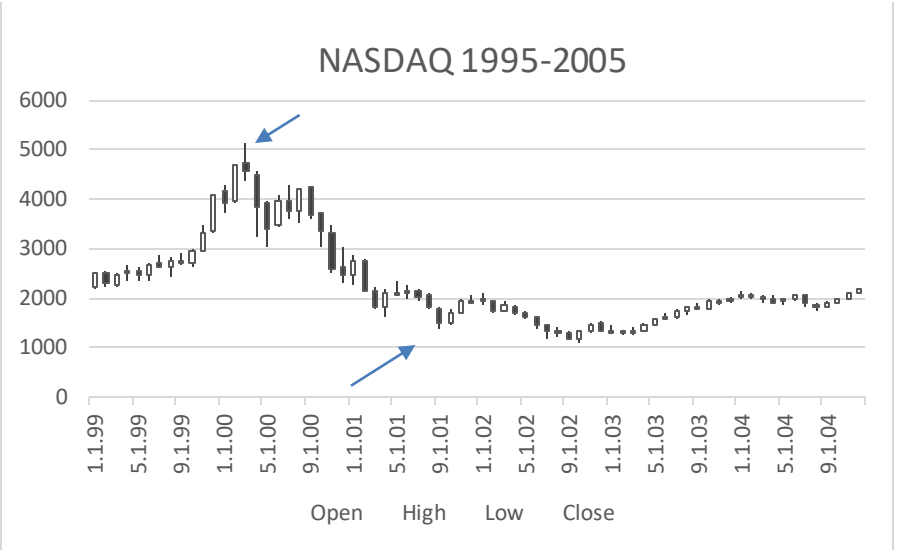

Figure 2. *NASDAQ 1995-2005*
Source: Index Data, Constructed from Yahoo! Historical Data Sets. [Retrieved from].

An audit of the corporate culture reveals an apathetic and exacting culture. The Enron culture is one that is aggressive and arrogantbut prides in adhering to corporate values, but these values exist only on the surface, and increased risk taking on behalf of the shareholder to enrich the corporate officers is a norm. A fierce "rank the yank", "death of the messenger culture exists, impeding transparency and ethical work practice. A 2002 New York Times Article by details the overly competitive pay structure and lavish compensation being a standard at Enron, setting a bar and exceeding the standards of other Wall Street firms. Organizational culture is independent of effective leadership and occurs even if effective leadership is not present. In an organization where leaders show a tolerance and indifference for misconduct, will likely lead to a culture where employees cut corners and take excessive risks to derive profits.

2.2. The major players

Whistle Blower: Enron Vice President: Sherron Watkins was given the task to sell off assets, but she was worried with the high-tech bubble bursting and Enron's stock prices slipping. Watkins was also responsible for finding unclear of-the-books arrangements backed only by Enron's deflating stock. Watkin's prepared a seven-page report that outlined her concerns about accounting scandals, but the report was found to be inconclusive by the CEO, the Chair and a third-party Arthur Anderson. In the October of 2001, Enron was reporting. Third quarter loss of $618 million and $1.2 billion write-off tied to the partnerships that Watkins' had warned about (Ferrel, Fraedrich, & Linda, 2017).

CFO: Andrew Fastow a CFO of the year in 2000 was indicted on 98 counts for inflating the profits of Enron. The charges included, fraud, money laundering, and obstruction of justice.

- Fastow was the brain behind the operations to conceal a $ 1 billion Enron debt, and this was directly responsible for the bankruptcy
- Fastow was responsible for making $30 million by using kickback and partnerships.
- Fastow initially pleaded non—guilty but changed his plea to guilty and admitted to scheming and hiding Enron debts and inflating profits and became a key witness against Lay and Skilling (Ferrel, Fraedrich, & Linda, 2017).

CEO: Jeffery Skilling the CEO of Enron was considered to be the mastermind behind the Enron crises and was one of the hardest to prosecute. He attributed the failure of Enron to; "run on the bank" and a "liquidity crises".

- The judge instructed the jury to that it could find the defendants guilty of consciously avoiding knowing about the wrong-doing of the company.
- Skilling was found guilty of honest service fraud and sentenced to 24 years in prison.

- In June 2010 the case was send to a lower court to be reevaluated (Ferrel, Fraedrich, & Linda, 2017).

Chair: Ken Lay was the CEO and chair of Enron in 1986 and was responsible for promoting Skilling. Lay was expected to be charged for insider trading and as to why he had begun selling his stock worth $80 million in late 2000's.

- 19 counts of fraud, conspiracy and insider trading, but the verdict was thrown out in 2006 when Lay died in Colorado and the ruling protected $43.5 millions of Lay's estate that was claimed to have been stolen from Enron (Ferrel, Fraedrich, & Linda, 2017).

Lawyers: Enron was a client of Vinson and Elkins and accounted to 7% of the firms $450 million in revenue. The lawyers dismissed the whistleblower allegations and came under scrutiny regarding allegations of providing opinions regarding Enron's special purpose partnerships. The firm did not admit to liability but paid Enron $30 million to settle the claims of collapse (Ferrel, Fraedrich, & Linda, 2017).

Merrill Lynch: Merrill and Lynch also came under scrutiny from prosecutors and the SEC for its role in Enron's finances, starting with Enron's 1999 sales of Nigerian barrages.

- Enron recorded $12 million in earnings due to the Nigerian deal and hence meeting its earnings goal at the end of 1999.
- M&L allegedly bought the barges for $28 million of which Enron financed $21 million.
- M&L went ahead with the deal despite internal documents and sources advising that about aiding and abetting Enron's fraudulent transactions.
- Replacement of a research analyst due to Enron threatening to exclude M&L from a $750 million stock offering.
- Paid $80 million to the SEC to settle for the Nigerian deal.

- Risky practices by M&L continued till 2008 and it was bought out by Bank of America for $50 billion (Ferrel, Fraedrich, & Linda, 2017).

Discussion

From our earlier analysis of the Enron situation and the major players, we can surmise that excluding the whistle-blower all of the major players had an important part to play in the downfall of the company. It has been argued that corporate culture and leadership play a big role in creating ethical and non-ethical practices in a company. Not only is the corporate culture and leadership of Enron being in questions but also of its major stakeholders who contributed to the crises.

Corporate Culture and Bankruptcy: Enron was considered a Wall-Street darling in the years prior to its bankruptcy and it posted exponential growth of revenue. But an audit of the corporate culture reveals that it had an apathetic and exacting culture. Furthermore, power was exercised in circumstances that would lead to a mis-use and abuse of power- Reward and Coercive power is apparent in Enron's culture, with reward power being a gateway to self-interest, and coercive power being a gateway to low transparency and fear in the organization. An article by Banerjee & Barboza (2002) in the New York Times, details the extravagance that was present in Enron. "For years Enron Corporation thrived on spending big and even as late as October – with warning ringing loudly about its rickety finances – no one at Enron saw any reason to change.".

Banker's, Auditors and Lawyers: Enron was a very influential company and hence retained the best of talent both internally and externally. But the corporate culture of the firm and leadership was such that it had a negative impact on the external stakeholders as well. It can also be argued that the corporate culture and leadership of the

external stakeholders was in itself faulty as they failed to prevent and disclose the wrong-doings at Enron that resulted in its demise. Vinson& Elkin's were responsible for dismissing the whistleblowers complaints, and their help in structuring special purpose entities.

Merrill and Lynch was responsible for engaging in business with Enron even though internal reports stated that it would lead to aiding and abetting. Furthermore, fear of a retaliation from Enron a $750 million stock offering, was enough to offset any concerns Merrill had regarding ethics and going even as far as to replace research analysts who would not comply.

Arthur Anderson a prominent accounting firm was implicated during the scandal. Andersen was retained by Enron for about $50 million a year but the was indicted on charged of obstruction of justice for destroying relevant documents and hence Arthur Andersen was barred from performing audits (Ferrel, Fraedrich, & Linda, 2017).

The Role of CFO in the Crises: Andrew Fastow named one of the best CFO's of the year was found responsible for embezzling both share-holders and other stakeholders. As a fiduciary has CFO position is a high-end responsibility that requires exemplary leadership skill. Being an award-winning CFO and then setting an example for people in the company is vital to the financial success of the company. As CFO, Fastow is privy to sensitive material that is important financial success. Using and building on referent power instead of aggressive coercive power can lead to healthier corporate culture. Enron was a competitor to one of most well-known Wall-Street brands.

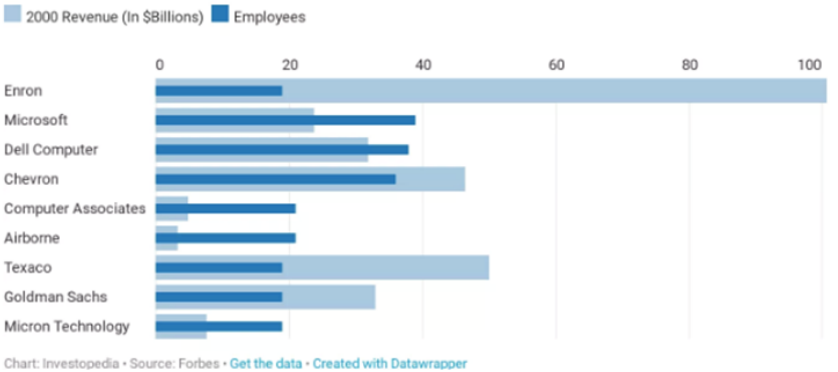

Figure 3. *Enron's reported revenue vs. Similary sized companies: Too good te be true?*
Source: Enron Revenue Comparison, [Retrieved from].

Impact on Consumer and Business Sentiment: The turbulent point time represents a cascade of events that rattled consumer and business confidence in the economy. This series of event culminate in the Great Recession and government intervention is required to restore investor confidence. The Consumer and Business sentiment represent index that are important indicators of trustworthiness in the economy.

Figure 4. *USA, Consumer confidence survey*
Source: Consumer Confidence, 1995-2018, The Global Economy, [Retrieved from].

Figure 5. *USA, Business confidence survey*
Source: Business Confidence, OECD, The Global Economy. [Retrieved from].

Both the Consumer and Business Confidence show a decline in the years of 2000-2001. The fall in NASDAQ, the Enron Scandal and the local and international reinforce our analysis about the gravity of our position. The Consumer and Business Confidence is developed by Michigan State and OECD respectively.

Great Recession and Government Intervention: The Sarbanes-Oxley act was a response to the Enron scandal allowing for more restriction on companies. But the negative impact of the scandal was large, and four thousand employees suffered unemployment issues and retirement and pension issues. The culminating impact was felt more acutely in 2008-2009 with the subprime and the credit default swap markets and the trillion-dollar TARP payments. According to an article by the U.S. Treasury, "Congress authorized $700 billion for TARP in October 2008, and the authority was reduced to $475 billion by the Dodd-Frank Wall Street reform and Consumer Protection Act (Dodd-Frank Act)." (treasury.gov).

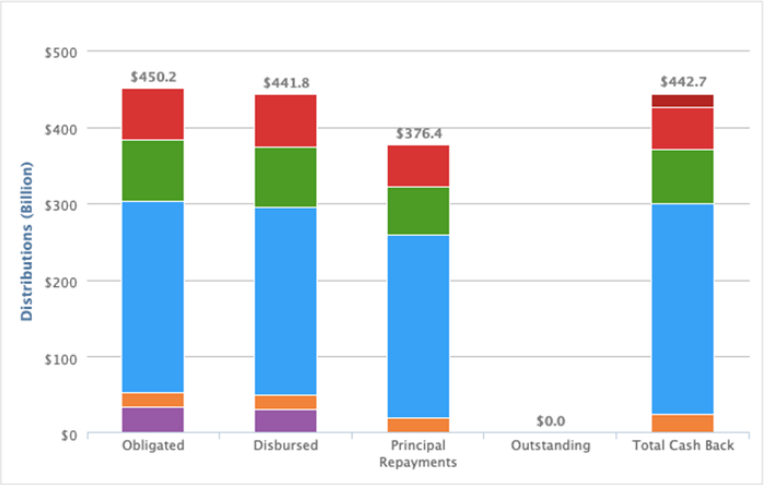

Figure 6. *Disposition of TARP Funds to date*
Source: TARP Tracker 2008-2019, U.S. Treasury. [Retrieved from].

Ethics, Ethical Accounting and Social Responsibility as Inferior Goods: We have conducted analysis on several specific data points in a time-line that holds important financial positions in the financial, business and economic history of the U.S. Our earlier analysis of GDP growth rate shows a peak right before the Enron crises in 2001 and peak right before its dismal decline in 2007-2008. Is it then possible to hypothesize that once the income level of individuals increases the likelihood of scandals goes up as risk and reward increase? Are ethics, social responsibility and ethical accounting inferior goods whose demand goes down once income rises? This would hold to be true for all the executives who have been held responsible in the scandal. Hence, then the opposite would hold true as the damage to the society increase and income goes down, demand for ethics, social reasonability and ethical accounting increases leading to indictments and convictions.

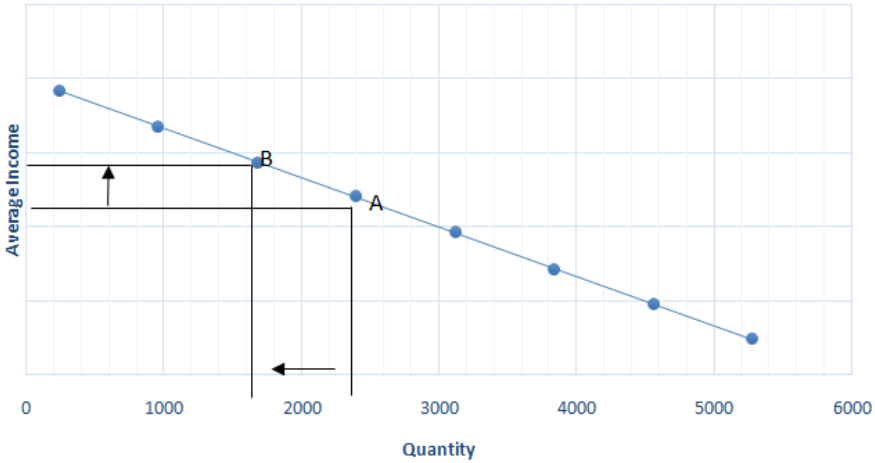

Figure 7. *Inferior good*

Conclusion

In this chapter we examine the years of 2000-2001 and the timeline of Enron, combined with the Asian Crises, Dotcom Bubble, International and local relations, and the Great Recession. It is not unlikely to believe that the financial crises and the dotcom bubble of 2001 were important factors in the fall of Enron. Furthermore, we audit Enron and its culture and ascertain a culture that is full of abuses of power, arrogance, and unneeded extravagance. Furthermore, the star-studded leadership does not lead by example but instead embezzles, the company and the stock holders. There is no focus on corporate social responsibility, or fiduciary responsibility. The culture of the firm and the extent of the corruption is a contagion that has spread to the lawyer, the auditors and the bankers. The Enron scandal and the collapse of the dotcom bubble is a major factor in the fall of NASDAQ and the fall in Consumer and Business Confidence and the consequent Government Intervention and Financial Crises. This chapter also further hypothesizes about the possibility of ethics, social responsibility and ethical

accounting being inferior goods and points towards peaks in business cycles and financial crises as evidence.

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5 King, Fuller and Dworkin on natural law and hard cases

Introduction

In this chapter I will argue for the position that the proper way to decide 'hard cases' is through the application of the natural law approach. This is primarily because natural law theory, considers "moral evaluations" as a necessary part of determining the content of the legal system. This approach is distinguished from the legal positivism approach, which in brief insists on a separation of law and morality. Therefore, to support my argument I will employ the interpretation of three prominent natural law theorists, Martin Luther King Jr, Lon Fuller and Dworkin.

According to Dworkin, a hard case occurs when, "no such established rule can be found" (Bix, 2004: 86). Dworkin gives us two examples of hard-cases and these are the cases of *Rigs V Palmer* and *Henningsen V Bloomfield*. In *Riggs*, the issue that arises is if an heir should inherit the will of his grandfather even though he is guilty of murdering his grandfather. In this case, there is no established rule that states that the heir should or should not receive inheritance because he is guilty.

In *Henningsen* the appeal was to set a higher standard of liability for the automobile company. In this case again there was no prior established rule that that set a higher standard of liability in the case accidents occurring from defective parts. More examples of hard-cases can be found in the era of Martin Luther King Jr, when he was imprisoned in Birmingham. King writes his *Letter from Birmingham Jail* acutely aware of the injustice prevalent because of the segregationist laws. There were a few if any rules established for cases that resulted from racial discrimination.

Even though there are divisions in natural law philosophy, the central theme present is that, "moral evaluation is considered central or necessary to *either* determining the content of legal rules, evaluating legal status of particular rules or systems, or the analysis of the nature of law." (Bix, 2004: 99). Hence a judge who ascribes to a natural law view of legal philosophy, would consider the moral evaluations of law to be of utmost importance when deciding 'hard cases' where new rules need to be formulated. King, Fuller and Dworkin, through their interpretations provide further insights as to how a judge may reason about rule formulation when deciding on hard-cases, while adhering to natural law philosophy. The natural law view that King appeals to in his *Letter from Birmingham Jail*, can be described as a form of voluntarist traditional natural law. It is divine commands that create moral values and hence, "a just law is a man-made code that squares with the moral law, or the law of God. An unjust law is a code that is out of harmony with the moral law." (King, 1963: 3).

King looks at the 'content' of law prevalent in his time and compares them to the ideals set by his traditional predecessors such as St. Thomas Aquinas and St. Augustine and hence, "an unjust law is a human law that is out of harmony with natural law." (King, 1963: 3). Furthermore, for

King the effect that a law has on a human's personality is of importance and hence a just law uplifts human personality and an unjust law does not. King further provides an example where the unjust law is an infliction on the minority imposed by a majority, forcing them instead of compelling them. Therefore, an unjust law is not binding although a just law has a binding force to it.

A judge that employees the natural law philosophy can choose to work within the tradition of his predecessors. While staying true to traditional natural law philosophy, Lon Fuller has provided for a much more sophisticated position. Lon Fuller treats law as a process or function, rather than any other object of study of science. For Fuller, the law is not a 'one-way projection of authority' (Bix, 2004: 77), rather Fuller makes the claim that it is better understood as, 'involving reciprocity between officials and citizens' (Bix, 2004: 77). Furthermore, for Fuller the 'moral ideals' towards which we strive is what makes law a *process*. He contrasts law with managerial direction, "which is attuned to attaining the objectives of the 'rule maker' – as contrasted with law, whose purpose is primarily helping citizens to coexist, cooperate and thrive" (Bix, 2004: 77). Therefore, for Fuller, establishing a new rule of law in 'hard-cases' would not be merely assigning it characteristics, but "an official response to certain kinds of problems- in particular, the guidance and coordination of citizens' action in society." (Bix, 2004: 78).

Fuller further provides, guidance to natural law philosophers by developing his 'procedural' view and offering a list of principles which he terms, 'principles of legality'. In Fuller's view these principles serve as the criteria to test the 'minimal duties' of the government and they also set out to define the direction of excellence to which the government should strive for. Therefore, they provide judges with an invaluable framework to assess the effect of a new rule when hard-cases arise. Fuller's principles make it

easier for law-makers to promulgate new rules and hence aid in guiding the behavior of citizens. A popular objection to Fuller is that, even though his principles maybe adopted, the theory proposes an efficient judicial system and not necessarily a moral judicial system. Although this criticism is diminished significantly while employing Dworkin's argument and the idea of a moral scale.

Ronald Dworkin, who originally initiated the problem of hard-cases in, *"Law as Integrity"*, is regarded to be a proponent of an interpretative theory of law. Even though Dworkin's approach is that, one should find the best interpretation available from the relevant data, he is regarded as a natural lawyer because he does not endorse a separation of morality from law and on the contrary, the best interpretation is one, "which presents the legal system as better morally." (Bix, 2004: 84). In formulating his theory Dworkin, takes into consideration not only principles, but also rules and policies. According to Dworkin, the principles are an integral part of the decision-making process when hard-cases arise. His definition of a principle states the importance in terms of justice and fairness. Therefore, "I call a principle a standard that is to be observed, not because it will advance or secure an economic or political or social situation deemed desirable, but because it is a requirement of justice or fairness or some other dimension of morality" (Dworkin,1977: 75).

Dworkin's interpretation of what a principle is important for a judge who adopts natural law philosophy and comes across hard-cases. This is because by applying principles and including his best interpretation of the data, the judge is able to formulate a rule where one did not previously exist and do so by keeping true to the spirit of justice and fairness. A further reason why principles in addition to rules facilitate the rule-making process is because, unlike rules, principles are not all or nothing. Principles have a 'weight and

dimension' (Dworkin, 1977: 78), and hence when a conflict arises, the principles weight and importance can be taken into account to resolve the conflict.

What makes the cases hard to the legal positivists is that, firstly there is no established rule, second if there is a rule to be created by the discretion of a judge then, what the positivist lacks is a criterion for that rule making. Therefore, through Fuller's distinction between law as a process and function, a new rule cannot be limited to certain characteristics and hence it should have a function. Therefore, for a natural law philosopher, there is a function to law which extends beyond merely applying characteristics to the rule and therefore according to Dworkin it becomes the responsibility of the judge to provide for the best interpretation in accordance with a moral scale.

In the cases mentioned by Dworkin and the continuous fight against the laws of discrimination since the era of King, it is evident that natural law philosophy is in play. In *Riggs V Palmer*, there is no ruling that says that the murderer should not receive his inheritance. However, the court denies the murderer his inheritance and cites the principle, "no one shall be permitted to profit from his own fraud" (Riggs, 2002: 75). Hence this decision reveals that the formulation of law and rules include principles and the system adheres to a spirit of justice and fairness. In *Henningsen* again the court cites a more specific principle, "the courts generally refuse to lend themselves to the enforcement of a 'bargain' in which one party is has unjustly taken advantage of the economic necessitates of the other (Riggs, 2002: 76).

In conclusion, I think the proper and best way to solve hard-cases is through the application of the natural law approach. This is primarily because, the natural law approach takes into account the moral evaluations of the rule being written. Furthermore, the natural law approach, proposed by Fuller provides a moral function to a new rule

and law and therefore, in hard cases where a rule is not evident, the new rule provides guidance for the citizens of the society. Furthermore, the application of principles as proposed by Fuller provides a framework from which to derive rules. Even though Dworkin, does not prefer to use the label of natural-law when proposing his theory, his theory stays true to the central tenant of natural law and that the interpretation of the available data should be the best one in accordance with a moral scale. As King observes the words of St. Augustine, an "unjust law is no law at all" (King, 1963: 3), and even though the strong reading of St. Augustine is rejected by many prominent jurists and philosophers due to its contradictory nature, once we start to think that law has a teleological purpose, a purpose that extends beyond the mere application of characteristics to rules, we start to appreciate the words of St. Augustine and the value of justice and fairness.

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6 Exploitation in a disruptive and unjust gig-economy

Introduction

The term gig economy was coined in the year 2009 by the journalist Tina Brown when she noticed that the younger generation were working multiple jobs. In the recent year the development of the online job market has been an explosive trend with an unchecked momentum. According to Dokko, Mumford & Schazenbach (2015), technological developments occurring in the workplace have come to blur the legal definitions of the term's "employee" and "employer" in ways that were unimaginable when employment regulations like the Wagner Act of 1935 and the Fair Labor Standards Act of 1938 were written. I will argue that the gig economy with its unchecked momentum and unfair labor standards is unjust and the worker is exploited.

In our case of the gig economy my argument states that the since 2009 the momentum of the gig economy has been unchecked and therefore in present day circumstances, the unchecked momentum has led to an exploitative working environment for the employee. The reason why an unchecked momentum creates a problem is that since the company finds itself creating a new disruptive market, the regulators are unsure of which laws are applicable to this new market and if any laws or rights are under infringement. It is only with due time that effects of the disruptive new market come to sight. The momentum of the new market is allowed to continue until complaints and lawsuits crop up regarding the company, this is also known as the "first mover" effect. This is when regulators start taking a look at the new market in order to determine what action is to be taken. This unchecked momentum is a concern because according to Berlin (1957), "when ideas are neglected by those who ought to attend to them – that is to say, those who have been trained critically about ideas – they sometimes acquire an unchecked momentum and irresistible power over multitudes of men that may grow too violent to be affected by rational criticism".

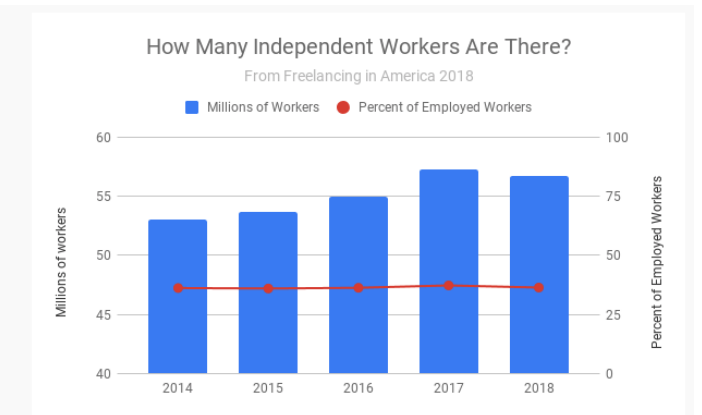

Figure 1. *Exploitation in a Disruptive and Unjust Gig-Economy*
Source: Shelly Steward, 2018 [Retrieved from].

The fact that the worker condition in the gig economy have not been paid attention to is further addressed in a recent article in the journal of industrial psychology; Kuhn (2016) states that, "Bergman & Jean (2016) include freelancers as one of the categories of workers who are understudied in the industrial and organizational (I-O) psychology literature. This neglect is particularly striking given the attention paid by the popular media and by politicians to the rise of the "gig economy," comprising primarily short-term independent freelance work". Some solutions to this problem of unchecked momentum would be to carefully scrutinize the legal implication before funding the business and not grant funding to the business which may have a negative social impact, reducing the negative social impact to the bare minimum or taxing the disruptive market. Furthermore, the regulators should be made aware of emerging disruptive markets so that they may be able to keep these businesses in check. A deep study of the existing workers in gig economy should be undertaken in order to avoid an emergence of negative externalities [1] and the exploitation of the worker.

Labor standards

The agreement of the employer and the independent contractor in a gig economy is a legal agreement. The classification of the employee into an independent contractor or an employee has recently fallen into precarious territory and many workers are misclassified. This misclassification has led to unfair labor standards and many a company in the gig economy have had to face lawsuits. Cherry's (2016) study found that, "To date, the dominant economic narrative for the gig economy has been one in which platform owners

[1] See Balalavea (2012), for an insightful analysis of innovation, public goods, negative externalities and Pigouvian taxes.

extract a share of income generated from the workers who use their platforms. This is troubling as many forms of crowd-work are situated at the crossroads of precarious work, automatic engagement, deskilling and low wages".

In the gig economy, the majority of the workers are independent contractors. The evolution of the gig economy has bought to light the reasons why the Fair Labor Standards Act[2] was established. The declaration of The Fair Labor Standards Act was based on the findings of the congress, that the industries engaged in commerce were not thoughtful regarding the well-being of its workers. The fourth proposition of the act explicitly states, "leads to labor disputes burdening and obstructing commerce and the free flow of commerce" (FLSA, 1935). The gig-economy has begun to show the conditions that are stated in the proposition. It has had to face misclassification law suites and has created a disruptive market, doing much damage to traditional employment. Since the gig-economy has grown in dollar value and employs a sizable amount of the work force, the complaints of the workers carry with them a substantial amount of force. Research by Horowitz & Rosati (2014) shows that, "A 2014 survey conducted by The Freelancers Union identifies more than 53 million Americans, or roughly 34 percent of the labor force employed as freelancers".

Theories of justice

Dr Reiff in his book "Exploitation and Economic Justice in the Liberal Capitalist State" tells us that there are two ways in which justice can be understood. The first is, "the distributive sense which states how the burdens and benefits of social corporation should be allocated across the various segments of the society" (Reiff, 2013). The second is, "the

[2]See Fair Labor Standards Act of 1938. The Department of Labor.

commutative sense which states that how individuals, corporations and certain entities may or may not interact with each other" (Reiff, 2013). According to Reiff (2013), exploitation is defined as "the unjust extraction of value from another as part of a voluntary exchange transaction not otherwise prohibited by law". Exploitation is one of those theories which does not limit itself to either distributive or commutative justice and is the expression of both the theories. The distributive sense of justice is concerned with the distributional effects on society as a whole. The commutative sense is concerned with how individuals and corporation may or may not act with each other.

Although the gig economy has indeed given rise to innovation and the creation of jobs in an era of recession; there has definitely been a misallocation of resources across various segments of the society and this has created a case of distributive injustice. This problem of distributive justice stems from the issue that the benefits of social corporation between the employer and the employee are uneven. The employer gains a lot more than the employee in the case of the gig economy. These jobs usually confer few to no employee benefits and workplace protections. This is in contrast to the tradition employment which employer-employee relationship which comes with many assurances and protections. These assurances include over-time protection, minimum wage, health protection, disability, unemployment benefits, sick leave and the ability to engage in collective action. In the gig economy, the employer gains the most as the only thing the employer is responsible for is paying the independent contractor. A massive saving in cost is incurred on the employer's behalf and the employee does not gain as much as the employer. The employee on the other hand invests his own capital, the cost of the depreciation of the capital is rarely if ever considered. The risk to society of having a worker with no health insurance

and worker protection is ignored. This creates a case where an unjust allocation occurs in the society, the employer does not adhere to a sense of corporate social responsibility (CSR) (McWilliams, 2015) and thus we have distributive injustice.

When a worker starts to work in the gig-economy he is either classified as an employee or an independent contractor. This classification is important because U.S law imposes a requirement on the employer with respect to their employees that are not imposed on the independent contractors. These requirements established by the Fair Labor Standard Act as stated earlier include, minimum wage, overtime rules, the right to organize, civil rights protection and maternity leave. Therefore, in a case where cost-cutting is the objective the employer can and does classify the employee as an independent contractor. This leads to a sense of commutative injustice as the employer can on the grounds of saving costs completely relieve the employee of any benefits he is entitled to. This is also known as misclassification and is one of the main reasons why the gig economy has seen a rise in lawsuits. From what we see in the examples of the gig economy nowadays, companies like Uber which are at a net worth of $41 billion employee mostly independent contractors. The reason that Uber has been able to amass this amount of wealth is because it only hires independent contractors and provides no benefits to them. Therefore, it is able to operate at a minimum cost while exacting as much from the contractors as possible. This leads to companies like Uber making excessive profits and mostly at the expense of the independent contractors through misclassification.

As stated earlier our exploitation definition is "the unjust extraction of value from another as part of a voluntary exchange transaction not otherwise prohibited by law". In the case of the gig economy we currently see that exploitation seems to occur both as prohibited by law and

not prohibited by law. The contractors sign up for work with the gig economy voluntarily, although many of them also sign up because they have no other choice. This fact is exploited by the employers as they are able to use this sense of urgency. According to Reiff (2013) this exploitation is termed as economic masochism "they seduce into engaging people in activity that they rationally expect will actually hurt their economic interest simply because they irrationally covet the privileges that obtaining such excessive profits would allow". Furthermore, the employers gain the full array of the employee's skill sets, their education, their capital but on the other hand only compensate them on a bare minimum. The benefits that these contractors would otherwise receive are completely disregarded.

The argument here is that the monetary value of these benefits is far greater, and this is one of the reasons why businesses prefer independent contractors and therefore the employers stand to gain far more in this case than the independent contractors. The employers know this for a fact and that their accommodation of the need for flexibility of many of these employees is merely because it is advantageous to their business. The amount of flexibility and working different jobs does not compensate for the benefits and growth the employee gets in a traditional career. A study conducted by Cherry (2016) states, "With low skilled work, the opportunity for entrepreneurship, and with-it risk-and-reward, is barely, if at all, present. The terminology is EULA is far from dispositive, as such online contracts are known to be extremely one-sided and are constructed against the drafter. The possibility of exploitation is high and low-skilled workers are those that are most in need of FLSA protection".

Conclusion and further study

As there has been a rise in the number of lawsuits and complaints in the gig economy, much research has been undertaken to provide for solutions, stem the flow of exploitation and to correct the state of the current job market. The courts have recently developed a test to determine whether a worker is an employee or an independent contractor. According to a study done by to Dokko, Mumford & Schazenbach (2015), "The "common law test" evaluates a worker's status based on which party has the right to control the work-process"; "economic realities test used by the Department of Labor to enforce labor standards such as the Fair Labor Standards Act that governs minimum-wage and overtime rules, focuses on the economic relationship between worker and employer. These tests help reduce exploitation due to misclassification.

Since technological innovations have brought to light the fact that the legal dichotomy is not fully exhaustive regarding employer and employee relationship, much thought is being given to revising these laws and adding new category of workers. This is definitely a step in the right direction as the labor laws need to keep up with the changes in the labor market. According to a study done by Stefano (2015), there has been a renewed focus towards policy development, "some policy proposals are critically analyzed such as the possibility of creating an intermediate category of worker between "employee" and "independent contractors" to classify work in the gig-economy, and other tentative proposals are put forward such extensions of fundamental labor rights to all workers irrespective of employment status, and recognition of the role of the social partners in this respect, whilst avoiding temptations of hastened deregulations".

The creation of unions and cooperatives has also been a suggestion that has been put to work. As stated earlier there

does exist a freelancer's union that advocates for the rights of the independent contractors. Associations exist to provide benefits for independent contractors, providing some comfort in light of the exploitative working conditions. A study done by King (2014) finds that, "Sara Horowitz founded the Freelancer's Union 1995; as of 2013 it has grown to include 223,203 members nationwide with the majority of the workers residing in New York State". The organizations mission is to promote the interests of independent workers through advocacy, education and service". We see that independent contractors have existed since before the term gig-economy was coined although these independent contractors existed as highly skilled laborers. Since 2009 the disruptive markets have been created that exploit low skilled labor. There does not exist protection for the low skilled labor besides the standards of the Fair Labor Act and since any changes in the government policies potentially affect millions in the work force the changes are slow to come through if ever. In recent years the growth of the gig economy has been tremendous both in terms of dollar value and the number of people employed. The gig economy is now a part of the overall working economy and therefore much more attention is being paid to the issues relevant to labor concerns, exploitation and the prevalent unjust working environment.

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7 Analysis of political economy, international politicaeconomy, globalization and its importance to public finance

Introduction

Through the many years of its development the discipline of political economy has evolved and stands by itself as a discipline distinguished from mainstream economics. Hence, according to Rosen & Gayer (2014), "political economy is the field that applies economic principles to the analysis of political decision making." (p.108).

Sackery, Schneider & Knoedler (2016) provide a further detailed explanation of political economy in the following quotation:

> Political economy…is more concerned [than mainstream economics] with the relationships of the economic system and its institutions to the rest of the society and social development. It is sensitive to the influence non-economic factors such as political and social institutions, morality, and ideology in determining economic events. It thus has a *much broader focus* than [mainstream] economics. (p.vii).

The modus operandi of political economy is then a collection of methodologies that are applied to the analysis of economic systems, political decision making, political behavior and institutions.

Weingast & Wittman (2006) in the *Oxford Handbook of Political Economy* provide for a succinct description of various methodologies used in political economy and hence:

> "Sometimes was viewed as an area of study (the interrelationships between economics and politics) while at other times it was viewed as a methodological approach. Even the methodological approach was divided into two parts-the economic approach (often called public choice) emphasizing individual rationality and the sociological where the level of analysis tended to be institutional" (p.3-28).

Therefore, the analysis focuses and narrows down on the individual. Rosen & Gayer (2014) explain that, "Political Economy models assume that people view government as a mechanism for maximizing self-interest." (p.108). Weingast & Wittman (2006) extend this description to include evolutionary games and hence, "The individual is motivated to achieve goals (usually preference maximization but in evolutionary games, maximization of surviving offspring)" (p.3-28). A further explanation is provided on the underpinnings of the theory and the mathematical and statistical methods that are used. "The theory is based in mathematics (often game theoretic), and the empirics either use sophisticated statistical techniques or involve experiments where money is used as a motivating force in the experiment" (p.3-28).

As the modus operandi is based on statistical analysis and the availability of data is then a prerequisite for theoretical development, much of the theory has been refined to analyze advanced industrial countries. Hence, according to Weingast & Wittman (2006) "Our most comprehensive knowledge is about the advanced industrial democracies in

general and legislatures in particular, where the great number of observations (of vote, party affiliation, etc.) allow for an extensive testing hypotheses and considerable refinement theory" (p.3-28). This is not to say that the discipline has not matured from its core area of research in recent years. Indeed, the discipline has developed to include a variety of political systems as the availability of cross-country data and information has increased. Therefore, "As motivating reason to choosing the size of nations as our prime example of the spread of political economy is that rational choice models have been unfairly accused of dealing with "epiphenomena" such as voting rather than with "deeper and more substantive" issues. The size and wealth of nations clearly passes the gravitas test (p.3-28).

The concept of international political economy is then similar to that of political economy with international political economy (IPE) being the study of cross-border transactions. Furthermore, this term later evolves into global political economy (GPE). Hence, according to Renee Marlin-Bennett (2017), "The concept of international political economy (IPE) encompasses the intersection of politics and economics as goods, services, money, people and ideas move across borders." (p.1-36). Moving on to Global Political Economy (GPE), Marlin-Bennett (2017) asserts that, "The shift signaled a recognition that what happens is not just about interaction between states and that the global political economy includes many different kinds of actors. Rulemaking for the global order happens in a private as well as a public setting." (p.1-36)

Hence, we see that the field of international political economy now more formally known as global political economy is quite substantive. Therefore, a careful study of the discipline requires that it be broken down into manageable chunks. Thus, according to Thomas Oatley (2011), "Typically, the global economy is broken into four

such issue areas: the international trade system, the international monetary system, multinational corporations (or MNCs) and economic development." (p.1-20). The study of the global economy using the modus operandi of international political economy is then more than a descriptive discipline that aims to describe the government policies and contemporary developments in the above mentioned four areas.

The focus is then on the consequences of these policies. Hence, according to Oatley (2011) "As a consequence two abstract and broader questions typically shape the study of trade, money, MNCs and development. First, how exactly does politics shape the decisions that societies make about how to use the resources that are available to them? Second what are the consequences of these decisions?" (p.1-20). To answer these two questions many scholars have devised theories. Therefore, Oatley (2011) asserts that, "Three traditional schools of political economy-the mercantilist school, the liberal school, and the Marxist school-have shaped the development of these theories over the last 100 years" (p.1-20). (Please refer to Appendix I for an insightful analysis of the three traditional schools of IPE).

Historical development of political economy and international political economy

The theoretical basis of the discipline can be traced all the way back to ancient times. Hence, according to John Kells Ingram (1915), "The history of economic inquiry is most naturally divided into three great periods of (1) the ancient (2) the medieval, and (3) the modern worlds." Of-course the most elaborate and well known of the Greeks was Plato who sets out describe his version of the ideal state. Therefore, according Ingram (1915), "In it the idea of the subordination of the individual to the state appears in its most extreme form." (p.338). Although another great work relating to the

discipline is found in these ancient times. Xenophon and in his treatise entitled *Economicus* we find although limited a practicality. "But there is to be found in his writings a remarkable body of sound and valuable thoughts on the constitution and workings of the social organism" (Ingram, 1915). Further Greek thinkers of note are of-course Aristotle, "who criticized Plato's conception of communal ownership and placed the state in the role of guarantor of private property in *The Politics* (Marlin-Bennett, 2017, 1-36). Among the earliest of thinkers in this time is the Indian author of *Artashastra,* a book on statecraft." (Marlin-Bennett, 2017, 1-36). The middle ages and the modern and era saw many a great works produced from a variety of perspectives. Ingram (1915) explains that, "The close of the Middle Ages as Comte has shown, must be placed at the end not of the fifteenth the thirteenth century."(p.696). Furthermore, the modern times are divided into three phases. "I. During the fourteenth and the fifteenth century […] II. In the second phase of the modern period which opens in the beginning of the sixteenth century […] III. And the last phase which coincides with the eighteenth century." (p.696)

From the Islamic scholars, "Ibn Khaldun (1332–1406) who wrote about the relationship between governing structures and productivity of people (Ibn Khaldun 1967). Another Muslim scholar of this era, Al-Maqrizi (d. 1442), analyzed governmental policies, including monetary policy." The well-known Italian writer "Niccolo Machiavelli (1469-1527), generally seen as a political theorist, was mindful of the relationship between the state and the economy as well, at least in the sense that a primary role of the prince or of a republican government is to protect private property". Furthermore, we find that the works of St. Thomas Aquinas are of critical importance, as they mark a period of scholarship providing for a synthesis of Greek thought by both the Muslim and Christian scholars and hence, "the

political doctrines of Aristotle reproduced with a partial infusion of Christian elements". (Marlin-Bennett, 2017, p.1-36).

Last but not the least Ingram (1915) asserts that then it was a French writer who produced the first systematics work:

> "The first systematic treatise on our science which proceeded from a French author was the *Traité de I'Économie Politique*, published by Montchrétien de Watteville (or Vasteville)in 1615. The use of the title, says Roscher, now for the first time given to the science, was in itself an important service, since even Bacon understood by "Economia" only the theory of domestic management." (p.1917).

Therefore, following the first systemic treatise then a variety of works were produced towards the end of the 16th century and in the 17th and 18th century. Many a prolific writer emerged such as; Richard Cantillon, Adam Smith, David Ricardo, Jean-Baptiste Say and John Stuart Mill. Onwards to the physiocrats such as Francois Quesnay, professors of political economy such as Thomas Malthus, Karl Marx and towards the mathematical development of the discipline we now know as 'economics' with Alfred Marshall.

As introduced earlier the traditional theories of international political economy have been developed in three schools of thought, mercantilism (or nationalism), liberalism and Marxism. As Oatley (2011) explains, "Mercantilism is rooted in 17th and 18th century theories about the relationship between economic activity and state power." (p.1-20) Even though the mercantilist tradition is large and varied, both classical and modern mercantilist adhere to three central propositions. Hence, "First the classical mercantilists argued that national power and wealth were tightly connected. […] Second, the classical mercantilists argued that trade provided one way for

countries to acquire wealth from abroad. […] Third, the classical mercantilists argued that some types of economic activity are more valuable than others." (p.1-20)

As our earlier analysis indicates the 18th century saw the advent of many a political writer in the discipline of political economy. It was also during this period that the second school of tradition political economy Liberalism arose as a challenge to the dominant thought of mercantilism. Two of the most prolific writers of the liberal school of thought were Adam Smith and David Ricardo who challenged the three central propositions of the mercantilist school.

Hence, Oatley (2011) provides a succinct description of the liberal arguments against mercantilism:

> "First, liberalism attempted to draw a line between politics and economics…argued that the purpose of economic activity was to enrich individuals not to enhance the state's power. Second liberalism "argued that…countries gain from trade regardless of whether the balance of trade is positive or negative. […] countries are made wealthier by making products that they can produce at a low cost at home and trading them for goods that can be produced at home only at a relatively high cost. Thus, … governments should make little effort to influence the country's trade balance or to shape the types of goods the country produces. (p.1-20)

Marxism was the third school of thought that rose in the 18th century. The work of Karl Marx can be viewed primarily as a critique of capitalism. Marx lays out the central conditions of capitalism and then predicts that capitalism would lead to a revolution that would do away with private property, private property being the central tenements that capitalism supported. The Marxist critique was in complete contrast to the view of liberal thought process and the mercantilist. While the liberal thought process focused on the market and the mercantilist focused on the state, Marx

focused on big corporations. Hence, Marx provides the central conditions to capitalism, "two central conditions: the private ownership of the means of production (or capital) and wage labor." Furthermore, he provided for the three dynamics that would drive a revolution away from capitalism. Thus, "… natural tendency towards the concentration of capital […] capitalism is associated with the falling rate of profit […] capitalism is plagued by an imbalance between the ability to produce goods and the ability to purchase goods" (Oatley, 2011, p.1-20).

Hence, these three traditional schools of thought provide for different answers as to how resource allocation occurs and provide and important framework for the application and analysis of policy. This Trichotomy as explained by John Ravenhill (2007) introduces further terms such as; Liberalism, Ontological liberalism, Deontological Liberalism, Realism, Statism, Mercantilism, Nationalism, Marxism, Structuralism, Radical and Critical.

Analysis of the strengths and weaknesses of globalization as a public policy

> Implicit in the term "globalization" rather than the older "internationalization "is the idea that we are moving beyond the era of growing ties between state and are beginning to contemplate something more than the existing conception of state sovereignty. But this change needs to be reflected in all levels of our thought, especially in our thinking of ethics and our political theory (Singer, 1950).

The rate of globalization has increased at a phenomenal rate. During the past 50 years we have seen many governments that have progressively eliminated policy barriers to trade. The elimination of these barriers to has led to a decrease in both the transportation cost and the telecommunication cost. This fall in cost has consequently led to the creation of division of labor by making it cheaper

to engage in import and export of inputs and organize and manage production on a global scale. Although there have been many benefits to globalization both for advanced economies and developing economies, there have also arisen problems. Hence, in last 15 years there has been a political backlash against globalization and critiques such as inequality, labor standards and the prioritization of commercial interests over others have ensued. (Oatley, 2011, 47-72)

To understand why the world has proceeded towards globalization we have to understand the impetus behind trade and what is it about trade that leads to globalization. The advantage and strength of trade is that it enables to achieve gains that would not be possible in a closed economy. Furthermore, we realize these gains due to the concepts of absolute advantage first explored by Adam Smith, the concept of comparative advantage introduced by David Ricardo, the Hechsher-Ohlin model and the Stolper-Samuelson Theorem. Hence, the framework that is used to assess the gains in trade are the partial equilibrium model and general equilibrium mode. Where the partial equilibrium model focuses on a single commodity and how the production and consumption of a commodity change with respect to trade. While the general equilibrium model focus on the whole economy and how the production and consumption of all goods change in response to trade. (Oatley, 2011, 47-72).

Both the partial equilibrium model and the general equilibrium model point us towards the gains that arise from trade. Hence, partial equilibrium analysis reveals that there arises a gain in welfare and that society enjoys a greater increase in welfare with trade then without trade. Furthermore, individuals as consumers capture these gains and it allows to consume more products for the same amount of money than they can without trade. This

translates into the fact that every dollar that the consumer earns goes further in the market place and hence raises the consumers income. General equilibrium analysis reinforces the principal of comparative advantage that, all countries gain when they specialize in goods they produce well, and trading for the goods that they produce less well. Therefore, country specialization occurs in goods that rely heavily on the factors of production that they hold in abundance and exchanging them for goods that rely heavily on the factors of production that are scarce in their economy (Oatley, 2011, 47-72).

Once we have understood why and how countries gain from trade we can begin to look at the consequences and controversies that surround the policy to globalize. There is vast amount of literature that documents the gains from trade both in developing nations as well as advanced economies. Both developing countries as well as advanced nations gain in terms of increase in wage structures. Although this is the case many a problem has arisen because of globalization such as; the rise in poverty and inequality, exploitation of labor and poor labor standards, the prioritization of commercial interest and the effect of trade on the environment. Recent analysis has revealed these to be true and that the policy measure to dampen these effects have not kept up pace with the phenomenal rate at which the world has globalized. Therefore, these negative effects have weakened the policy measure to globalize and hence the backlash in recent years.

As mentioned earlier there are two questions that arise out of the study of the global economy through the lens of political economy, pertaining to the political decision about resource allocation and the consequences of these decisions. Hence, further exploration of these two questions yields that these decisions have both "welfare consequences" and "distributional consequences". Thus, the research tradition is

further divided into two traditions, "explanatory studies which relate more closely to the first question…" why questions" […] Evaluative studies, which are related to the second abstract question, are oriented toward assessing policy outcomes […] A welfare evaluation is interested primarily in whether a particular policy choice raises or lowers welfare." (Oatley, 2011, 1-20).

We see that the study of welfare consequences and distributional consequences falls under the umbrella of public finance. Hence, according to Rosen and Gayer (2014), welfare economics is "The branch of economics theory concerned with the social desirability of alternative economics states." (p. 3-50). We see that there are welfare issues that arise due to globalization and hence can be termed as externalities, "A situation when the activity of one entity directly affects the welfare of another in a way that is outside the market mechanism." (p.3-50). Furthermore, the framework of the normative welfare system, makes us ask three questions in regarding public policy. Therefore, "will it have desirable distributional consequences? Will it enhance efficiency? Can it be done at a reasonable cost?".

From our above analysis we do see that there are distributional costs to the proposed public policy in terms of inequality, but we also see that the public policy enhances efficiency due to specialization of labor, furthermore it may be done at a reasonable cost since the public policy in itself brings in revenue and sets the basis for global taxation. Distributional considerations are hard to assess for public project and if the Hicks- Kaldor criterion is used then, "A project should be undertaken if it has a positive net present value, regardless of the distributional consequences" (Rosen & Gayer, 2014, p.147-173). Correcting for distribution always proves a problem even if the government tries to work in the background to correct distributional issues in a cost-effective manner. Although this does not mean that correcting for

distribution is not in effect. There are is a vast amount of literature that addresses value judgements such as the debates between the welfarist and the egalitarian. Furthermore, policy programs such as retraining for labor, strengthening of social security, providing information to both employers and employees, regulations on labor standards are examples of programs that have been proposed to deal with distributional issues.

Although it is documented that it is a tough for the government to correct for distributional issues, analysis has revealed that there has indeed been a shift towards a welfare state documented especially in the OECD countries (Garrett & Mitchell, 2001, 145-177). Hence, from the point of view of many this shift to the welfare state has been traced back to the rapid increase of internationalization and globalization. Hence, then globalization has in itself provided the government with the incentive to increase their activity in order to stem the tide of the distributional effects of globalization.

Globalization and its importance to public finance

As briefly mentioned above the distributional and welfare consequences make globalization an important topic in the study of public finance. This is because the tools of public finance are used to analyze both the distributional and welfare consequences and to decide what course of action is desirable. Furthermore, in open economy where the capital is completely mobile across countries opens up the economy to the possibility of Capital Taxation in a Global Economy. Hence for US that has a large capital market it is imperative that policy makers take globalization into account. Hence, "policymakers who ignore globalization will overestimate their ability to place the burden of taxation on owners of capital" (Rosen & Gayer, 2014, 308).

There are further reasons why globalization is important for the field of public finance. As globalization is a policy measure and then requires government spending such as maintaining an infrastructure that supports the policy to globalize. Hence, this is important for many a developing country, "they may need to take undertake major public expenditure reforms to enhance competitiveness in the global market and reduce structural unemployment" (Kumar, 2006, p.96-86). Furthermore, tax competitiveness is another reason why globalization is important to public finance. This may lead to a fall in government revenues especially for developing countries, because of a tax competitiveness, foreign direct investment, tax havens, portfolio investments, electronic commerce. Hence, globalization can be seen demand an increase in government regulation while at the same time reducing the government capacity to intervene due to a reduction in the availability of financial resources (Kumar, 2006, p.96-86). Hence, the tax system for both developing and advanced countries will need to be overhauled due to globalization and this has taken place in the recent years. There has been a marked move towards policy harmonization behind national borders, prevention of negative externalities that undermine the countries security and stability and the emergence of modern public finance which blends the state of external and domestic policy demands. The new challenges that have arisen have been met through mobilizing and public and private resources towards making international cooperation behind national borders to happen (Kumar, 2006, p.96-86).

Conclusion

The chapter provides for a succinct introduction to the modus operandi of political economy, international political economy and in more recent times the global political economy. The historical development of the discipline is

mapped out and we trace the development through the three main periods, ancient, medieval and modern. Furthermore, analysis of the three main schools of thoughts is provided for and we examine that policy to globalize arises from the impetus to trade and principles of absolute advantage, comparative advantage and the HO model. Furthermore, we examine that there do arise gains from trade but at the same time there are also distributional issues that arise from globalization. Hence, the tools of public finance are used to evaluate the distributional consequences. Furthermore, we reach a conclusion that globalization and internationalization has caused many countries to shift towards being a welfare state to stem the negative effects of globalization.

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8 Berkeley blues; Ford community corps partnership: Integrating environmental ethic, bioethics and the ethics of emerging technology into a comprehensive leadership philosophy. A regional study, Detroit

Introduction

The following is a proposal for a Ford Community Project. The proposal consists of a literacy component and an interaction component to create environmental consciousness and the responsible use of technology. The problem is that Michigan has always been a manufacturing hub which in the past has led to growth but at the same time irresponsible use of emerging technology and damage to the environment. The goal is to engage students into learning the responsibility that they have towards the environmental sustainability as well as to learn the responsible use of emerging technology.

The project involves a literacy and interaction component that educates the student in the fields of Environmental Ethics, Bio Ethics and the and the Ethics of Emerging Technology. The agency that has been approached for the project is ERACCE. ERACCE is currently involved with

Environmental Justice projects in Kalamazoo, Michigan. Students may visit the nature conservatories to see first-hand the sanctuaries that have been created to promote biodiversity. Furthermore, communities that have been impacted by the rapid growth of industrialization will be served by collecting data from the business community in the area and then conducting an analysis for further action.

This project can lead to a healthy debate regarding the environment, sustainability and emerging technologies and can be beneficial for the Michigan economy through providing a conscious framework that accesses future industry growth especially in the technology sector. Furthermore, the project aligns itself well with the Green Initiatives set by the Ford Motor Company, the initiative of the University of Detroit Mercy Law School, Environmental Clinic, protecting the exceptional natural habitats that exist in Michigan and serving the needs of the negatively impacted community.

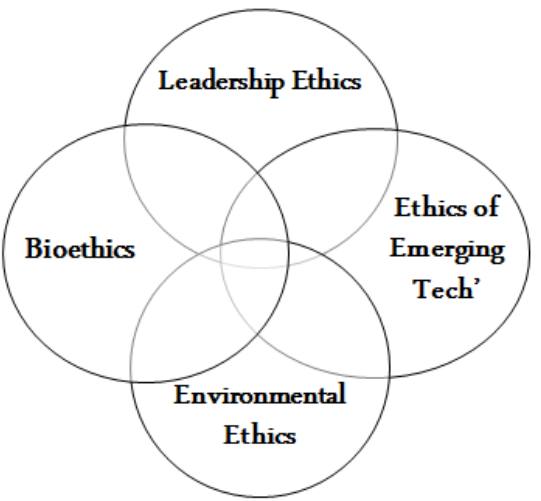


Figure 1. *Retalionships.*

1.1. The objective

Michigan has a legacy of leadership in conservation, environmental stewardship, civil rights, industrial innovation, and entrepreneurship. Yet actions across the state also have a legacy of polluting the environment in ways that affect negatively peoples' health and damage the terrestrial and aquatic ecosystems that people rely on for maintaining their economic vitality, recreational enjoyment, and cultural heritage.

Environmental Justice Work Group Report-Michigan as a Global Leader in Environmental Justice-March 2018.

- Need 1: Lack of literacy and awareness regarding Environmental Ethics.
- Need 2: Lack of literacy and awareness regarding Bio Ethics
- Need 3: Lack of literacy and awareness regarding the Ethics of Emerging Technology
- Need 4: Lack of engagement, outreach and public relations with and to sanctuaries, impacted communities and business.

1.2. The opportunity

The opportunity exists to both provide a literacy and interaction component in the realms of Environmental Ethics, Bioethics and the Ethics Emerging Technology of Technology. Furthermore, the proposal satisfies the requirement set by the Ford Community Corps; quality of community engagement, quality of service learning engagement, quality of project planning and value added.

- Goal 1: Build literacy on the topics of Environmental Ethics.
- Goal 2: Build Literacy on the topics of Bio-Ethics.
- Goal 3: Build literacy on the topics of Responsible use of Technology and Ethics of Emerging Technologies.
- Goal 4: Engage students with a service learning trip to visit sanctuaries.

- Goal 5: Engage students in an outreach project that reaches out to the in the area.
- Goal 6: Present findings to the partner agency as well as an end of project report.

1.3. Our proposal

My personal qualification includes an A.B. in Philosophy from the University of California Davis. During my time at UC Davis, I studied both economics and philosophy. My further studies include a M.A. in Economics from the University of Detroit Mercy, where I have studied relevant courses such as Public Finance and Labor Economics. Some of my research has focused on the impact of Globalization on Labor Markets, Technology and Environmental Policy. I have graduated with my M.A. in Economics from University of Detroit Mercy, in June 2019, after which I will be continuing my studies as an MBA student. Furthermore, my work experience includes a decade of experience in the textile manufacturing and export sector, research and administrative experiences with the University of California Berkeley, University of California Davis and University of Detroit Mercy. Additional experiences include work as an audit intern, accounting intern, trade analyst, car export, retail and business administration.

Rationale

During my time in the apparel manufacturing industry I witnessed first-hand the externalities that arise, and this led to my current focus in education. Furthermore, one of the main reasons to move to Michigan was because of Michigan's strengths in manufacturing and my relevant skill set. During my time in Michigan I have seen the same problems that have arisen in the manufacturing industry throughout the world. Pollution and externalities are evident, and a lack of concern is also evident. At the same

time there has also been an evident move towards effective environmental policy, although as the recent Environmental Justice Report from 2018 states there is still more work to be done. The rationale is to bring about Michigan's strength in manufacturing with a focus on sustainability and to allow Michigan to develop a competitive advantage in the fields of Environmental Ethics, Bio-Ethics and the Ethics of Emerging Use of Technology.

Furthermore, I also draw inspiration from other major sources and works. First and foremost, *His Holiness Pope Francis' encyclical Laudato Si' released in June 2015, sub-titled 'On Care for our Common Hope'* which puts ecological justice and social justice right at the heart of Catholic faith practice. *The Laudato Si' Institute was launched in September 2019, with Professor Celia Deane-Drummond, currently Professor of Theology and Director of the Center for Theology, Science and Human Flourishing at the University of Notre Dame, USA, will be the inaugural Director of the Institute.*

(1) An ambitious research program using a dialogical method that enlists philosophical, ethical and theological insights as well as scholarly research in the natural and social sciences.

(2) A global network of allied activities inspired by Laudato Si' in order to foster international collaboration and link scholarship across different global cultures and contexts.

I also draw inspiration from the work of two Economic Nobel Laureates who shared the Nobel Peace Prize in 2018. Dr. William Nordhaus, *"For integrating climate change into long-run macroeconomic analysis"* and Dr. Paul Romer, *"For integrating technological advances into long-run macroeconomic-analysis."* Since, economics in its earlier days was itself an extension of philosophy and ethics and could not be separated, I believe that running a project that focuses on ethics parallel to these ideas will provide beneficial results. Further, inspiration is also drawn from *UN Sustainable goals and World Economic and Social Surveys 2018 and Frontier*

Technologies for Sustainable Development. I also include in the proposal for immediate impact the results from the EJ Screen, an app developed by EPA that measures environmental quality and environmental justice in a given region. The below analysis has been conduction for a 10-mile radius surrounding Detroit Mercy.

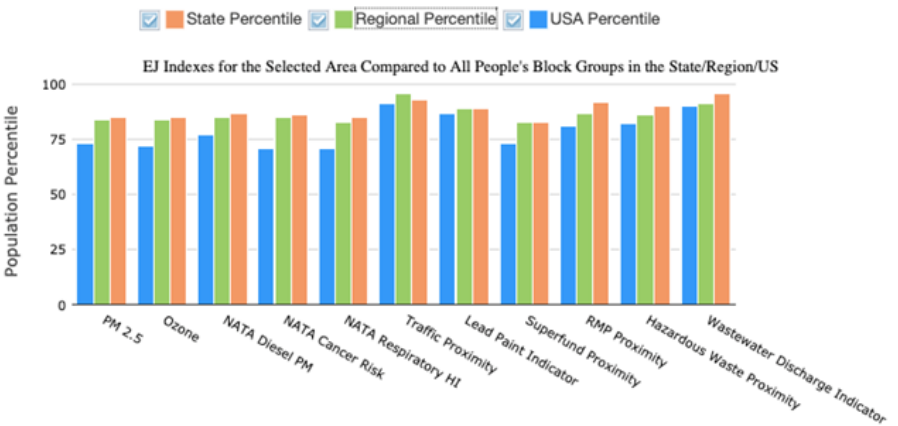


Figure 2. *EJ Indexes*

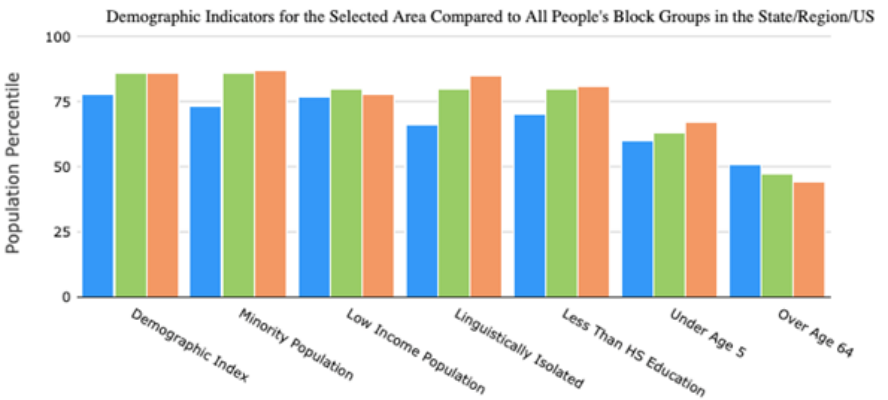


Figure 3. *Demographic indicators*

Figure 4. *Environmental indicators*

The data displayed shows the indicators set by the EPA to gauge environmental justice issues. As we can see data points such as cancer risk is above the state and national levels, so is the NATA respiratory level, hazardous waste proximity, and the wastewater discharge indicator. The business community with a sense of social responsibility can have a positive impact on the surrounding vicinity of the University which in turn will have a desirable consequence on the impacted residents.

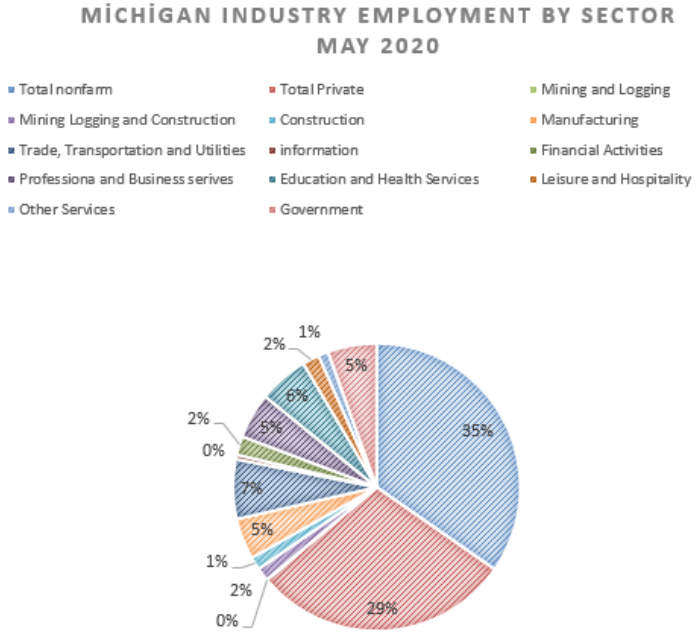


Figure 5. *Data constructed from Michigan Department of Technology, Management & Budget*

Covid 19 response

EJ Screen

- Cancer Risks Above State and National Levels.
- NATA Respiratory Levels Above State and National Levels.
- Hazardous Waste Proximity
- Waste Water Discharge.

Covid-19

- One of fastest states to get infected.
- Urban Decay hampers revitalizations efforts.
- Defiance of Social Distancing.
- Critical Infrastructure and Supply Chain Failures.

Is it all for naught?

- Arsenal of Democracy.

- Strong Health Care Industry.
- World Class Academics.
- Revitalization.
- Great Lakes.

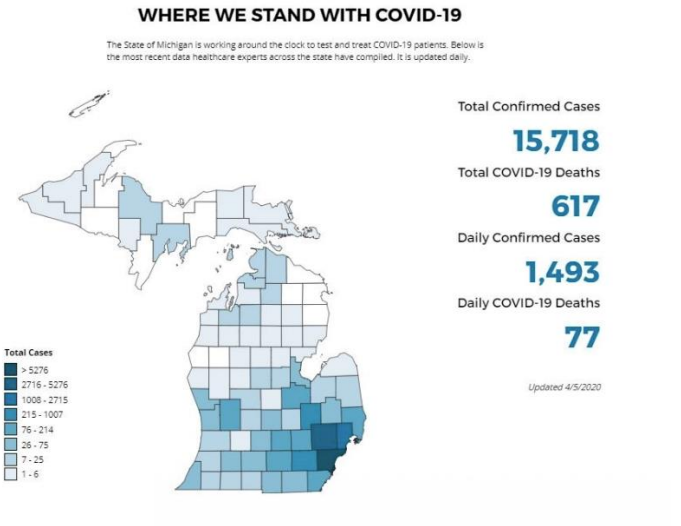


Figure 6. *Where we stand with Covid-19*

3.1. Mission specific response

Figure 7. *Mission spesific responce*

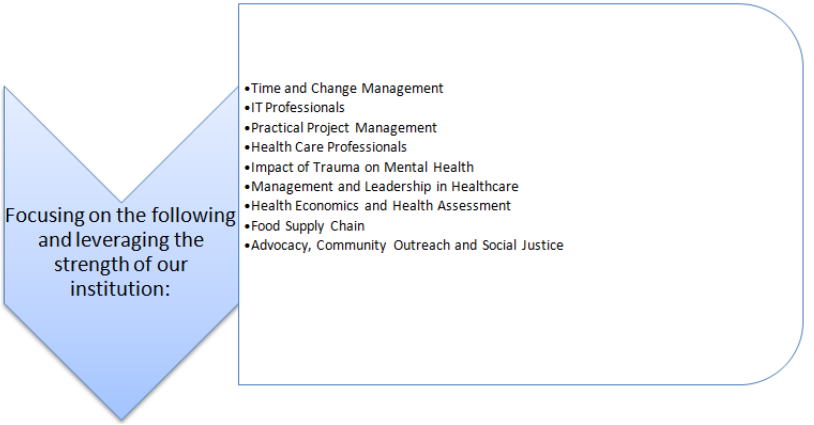


Figure 8. *Focusing on the following*

3.2. Mission specific response

- Integrating Pope Francis's Encyclical Laudato Si':

1. The Relationship of Science, Religion and Ethics
2. The Dangers of Technocratic Paradigm
3. The Integral Ecology of Humankind and the Environment
4. The Call to Ecological Conversion
5. The Importance of Dialogue with Business

- Ministry Specific Responses:
- Online Seminars for Reflections and Spiritual Support
- Food Pantry- The Hive
- Spiritual and Intellectual Events

3.4. Relevant theories

- Notre Dame and Laudato Si' at Oxford.
- 1.The Relationship of Science, Religion, and Ethics 2. The Dangers of the Technocratic Paradigm 3. The Integral Ecology of Humankind and the Environment 4. The Call to Ecological Conversion 5. The Importance of Dialogue with Business.

♦ Dr. Gregory Clark UC Davis, Microbes and Markets: Was the Black Death an Economics Revolution? A Farewell to Alms, The Son Also Rises.

♦ Dr. William D. Nordhaus Yale University "for integrating climate change into long-run macroeconomic analysis" and Paul M Romer, NYU "for integrating technological innovation into long run macroeconomic analysis".

♦ Notre Dame and Laudato Si' at Oxford.

♦ 1.The Relationship of Science, Religion, and Ethics 2. The Dangers of the Technocratic Paradigm 3. The Integral Ecology of Humankind and the Environment 4. The Call to Ecological Conversion 5. The Importance of Dialogue with Business.

♦ UN Sustainable Goals 2018. UN Sustainable goals and World Economic and Social Surveys 2018 and UN Frontier Technologies for Sustainable Development.

Figure 9. *Sustainable development goals*

The method and solution

4.1. Who? What? When? Where? How? Why? Study Design

The study was designed with the following factors in place.

Case-Control: A case control is an observational study that compares patients who are afflicted with a certain X with patients who do not have an affliction to X. Hence in our study the volunteers being a cohort of young students were

not exposed to the environmental injustice. Case control is always retrospective because it starts with an outcome then traces their back to investigate exposures.

Cohort Study: A study design where one more sample called (cohorts) are followed prospectively and subsequent status evaluation with respect to an affliction X or outcome are conducted to determine which initial participants exposure to characteristics (risk factors) are associated with it. Hence the volunteer students were followed prospectively.

- 2 Cohorts:
  1. Foundation of Ethics – (Non-Mandatory/Discussion)
  2. Civil Engineering – (Mandatory/Discussion/Research)
- 22 Student, Foundation of Ethics:
  - 14 Business Students
  - 1 Bio-Chemistry
  - 1 Architecture
  - 1 Accounting
  - 1 Elementary Education
  - 2 Criminal Justice
  - 1 Undecided
- 6 Students, Civil Engineering
- PYC Leadership Cohort 2019.

4.2. Who did I work with?

1.University of Detroit Mercy, Leadership Institute Ford Community Corps Partnership

2. Faculty Sponsors: Dr. Martin Leever, Dr. Alexa, Rihanna-Abdlalah

3.Volunteers: Foundation of Ethics and Engineering.

4.Non-Profits: ERACCE, Detroit Audubon, Detroit International Wild-Life Refuge, Belle Island.

4.3. Selection criteria

1.University of Detroit Mercy, Leadership Institute Ford Community Corps Partnership: An RFP was issued and responded with my proposal. After a review the proposal was selected, and my work began with the Leadership Team and I began my studies of Leadership Theories in Fall 2019.

2.Faculty Sponsors: Dr. Martin Leever, Dr. Alexa, Rihanna-Abdlalah= The faculty and departments were selected based on their strengths pertaining to the topics of, environmental ethics, bioethics and the ethics of emerging technology.

3.Volunteers: Foundation of Ethics and Engineering. The selection of the volunteers followed through with the selection of the faculty members. Furthermore, the volunteers were chosen based on what course they were attending. Hence all the volunteers were from selected courses that complemented the objective of the proposal.

4. Nonprofits: ERACCE was selected as the primary non-profit due to their strengths in the subject matter, regional and national presence as well as prior relationship with the University of Detroit Mercy. Detroit Audubon, Detroit International Wild-Life Refuge and Belle Island were designated secondary non-profits and their eligibility was based on them being part of the community advocating for environmental justice. All the non-profits operate in a Urban setting as does the University of Detroit Mercy.

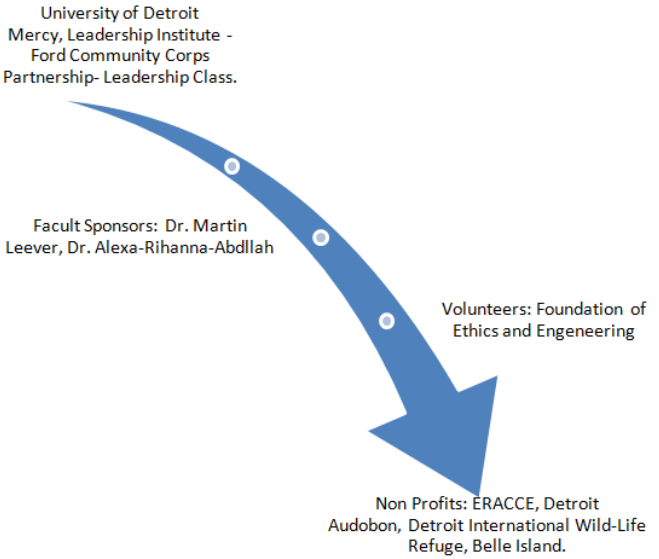


Figure 10. *Selection criteria*

4.4. What did I work with?

The following data sources were used:

Primary Data: Regional Data, Company Research, Volunteer Research, Surveys, Interviews, Interventions, Evaluations, Site Visits.

Secondary Data: Regional Journals, Academic and Scientific Journals, EPA Data, EJ Screen.

4.5. Solution and intervention

The recommendations that lead to the proposed solution are to encompass a literacy and interaction component preferably in and through courses that signify ethics. Courses such as; Foundation of Ethics (undergraduate). Personal Development and Social Responsibility (Graduate, MBA), Global Sustainability, (Graduate MBA)

- Recommendation 1: Integrate Environmental Ethics, Bio Ethics and the Ethics of Emerging Technology into Foundation of Ethics and Civil Eng'

- Recommendation 2: Provide an interaction component to visit existing sanctuaries in Michigan and/or engage with a non-profit that works in the sphere of environmental sustainability/justice and technology (eg: renewable technology).
- Recommendation 3: Provide an interaction component to engage with the business in the area on behalf of the impacted community to collect data and perform further analysis.
- Recommendation 4: Utilize the research and data collected from outreach projects to provide a value-added service to a non-profit and relief to the community.

4.6. Measurements

- The recommendations were implemented by the Student Leader and the Faculty Sponsors.
- Communication with all stakeholders took place with bi-weekly updates throughout the year-long project.
- A formal pre-evaluation was conducted at the beginning of the project and was administered by the student leader
- An informal evaluation was conducted by the student leader to gauge student interest in the project.

4.7. Service learning outcomes

Goal 1: Students will be able to articulate the various positions in Environmental Ethics and Bio-Ethics and the Ethics of Emerging Technology. This will enable students to pinpoint with accuracy the problems that arise in the community in regard to different ethical positions.

Goal 2: Students will engage on behalf of the community with the business in the area to ascertain their position on the selected topics. The students will conduct public relations and build on relationships and conduct

investigations and conversations to steer resources, and attention towards environmental issues surrounding the immediate vicinity of the University.

4.8. Classroom strategies

In pre-service reflection session, students will be asked to identify the social issues facing residents of the area in which the students will work.

As part of the written post-service reflection students will be asked:

- Why were our services needed? What social issues impacted those whom we served?

How has your understanding changed regarding the social issues facing those whom we served?

Students will be required to enter a Blackboard journal entry immediately after every service experience including the following:

- What was my immediate reaction during and after the service experience? How did I feel? What thoughts did I have?
- How do I think the people whom I served were feeling? What were they thinking while we work interacting with them?

Students will be required to write a three-page reflection paper on what they learned from the service experience and how it related to the course material.

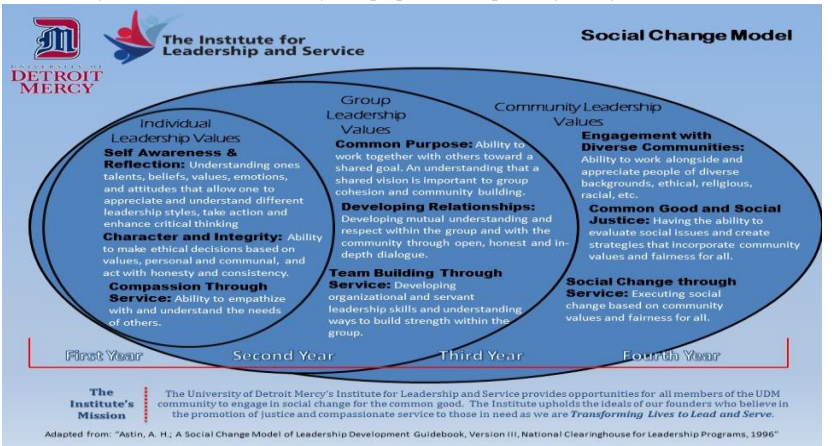


Figure 11. *The social change model used by the university is recommended as a reference throughout the project lifecycle.*

4.9. Assessment method

Student assessment will be based on the quality of the students' reflection and based on the rubric below.

Student assessment will be based on students' ability to clearly identify issues. The standard for this will be established in classroom presentations.

1. The project has the ability to enhance the course components of the following courses: Foundation of Ethics (undergraduate).

2. The project will enhance the organizations position on environmental ethics, bioethics and ethics of emerging technology. It will also provide the organization with actionable research from the field service projects which can then be used to better serve the community. The student will engage in public relation on behalf of the community with organization that have a significant impact on the immediate vicinity around Detroit Mercy.

The best way for the students to evaluate and reflect would be to write a reflection paper towards the end of the project as well as participate in a survey regarding the

project. The students will also effectively participate in preparing the end of project presentation and report.

Deliverables

One training from ERACCE

- One visit to a sanctuary.
- One visit to/conversation with an environmental justice non-profit –
- to learn about their work and get names of and suggestions about how to get them to answer and engage in public relations.
- Get their answers to the questions that ERAACE proposes
- Engagement with "" Each student required to get answers from at least one "polluter" on the list from the Environmental Justice non-profit and engages in public relations.
- Correspond with the Environmental Justice group about success/lack thereof with first attempt. If the students experience repeated lack of success in trying to reach the, and can show evidence of attempts, next steps will be evaluated in conversation with the Environmental Justice group and FCCP Coordinator.
- End of Project Report: (preferably one report for all the parties involved as separate reports will create too much work for students.)
- Report to ERACCE/Environmental Justice Non-Profits – this Report would have to be approved by FCCP Coordinator. Approval would depend on the quantity/quality of information received and quality of analysis.
- Report to ERACCE about power dynamics
- Report to Dr. Leever about the ethical analysis of the experience.

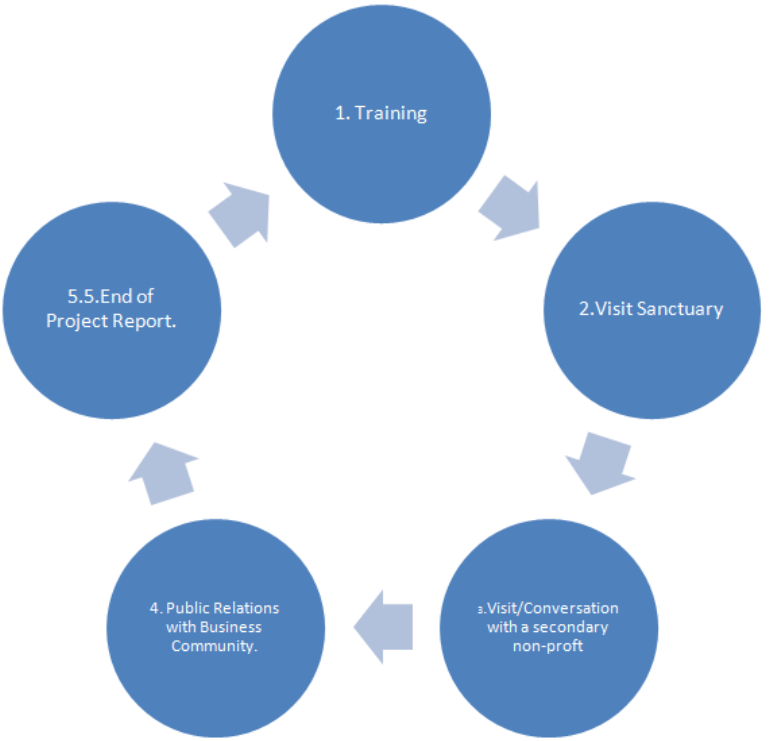


Figure 12. *Deliverables*

5.1. Project research criteria

Moral Philosophies to keep in mind duringthe analysis: Instrumental and Intrinsic goodness, Teleology, Deontology, Relativist Perspective, Virtue Ethics, Justice, Cognitive Moral Development.

How to audit the culture of a company: Why would you audit a company's culture.? This is an important exercise for anyone in the business world either looking to enter employment or otherwise. An individual wants to work in a culture that is suitable for their growth and conducive to the flourishment of the community.

How to audit the company's culture?: "A corporate culture is the share beliefs top managers in a company have about how

they should mange themselves and other employees and how they should conduct their businesses.".

"The Ethical Culture reflects the integrity of decisions made and is a function of many factors including corporate policies top management's leadership on ethical issues, the influence of coworkers and the opportunity for unethical behavior."

Types of Cultures: Apathetic Culture, eg: Countrywide Financial; A Caring Culture, eg: Ben & Jerry's; Integrative Culture, eg: Starbucks; Exacting Culture.

Power Shapes Culture: To Identify Power you have to identify the stakeholders and the power they possess.

1. Employees (compensation and benefits, training and development, employee diversity, occupational health and safety, communications with management)
2. Customers, (product safety and quality, management of customer complaints, service to disabled customers)
3. Investors (transparency of shareholder communications, shareholder rights)
4. Suppliers (encouraging, suppliers in developing countries, encouraging minority suppliers)
5. Community (public health and safety protection, conservation of energy and materials, donations and support of local organizations)
6. Environmental Groups (minimizing the use of energy, minimizing emissions and waste minimizing adverse environmental effects of goods and services)

Types of power

Rewards Power, Coercive Power, Legitimate Power, Expert Power, Referent Power

Ethical Leadership

"Leadership is the ability or authority to guide and direct others towards a goal"

Eg: Warren Buffett, Howard Schultz, Larry Merlo, Kip Tindell

-Normative Myopia

Eg: 7 Habits of Strong Ethical Leaders

Ethical Leaders have strong personal character, Ethical Leaders have a passion to do right, Ethical Leaders are proactive, Ethical leaders consider all stake holder interests. Ethical leaders are role models for the organization's values, Ethical leaders are transparent and actively involved in decision making. Ethical leaders take a holistic view of the firm's ethical culture.

5.1. Questions to ask for discovery and assessment process

Does the company have written code of conduct? Have individual from high-level positions in the organizations been assigned overall responsibility to oversee compliance with standards and procedures?

What are the process or other means by which ethics are integrated into any or all manufacturing distribution, e-commerce and general corporate strategy decision?

Is there a review process whereby legal, ethical and business practice considerations are presented, reviewed, or otherwise considered by the board of directors?

What steps has the company taken to communication its standards, procedures, and policies to all employees through training programs or publications that describe company expectations? Has the organization takes reasonable steps to achieve compliance by utilizing, monitoring, and auditing systems to designed to detect misconduct and by providing a reporting system whereby employees can report without fear or retribution. In adherence to and implementation of the code of ethics one of the standards by which the corporate culture can be linked directly to performance measures?

Have the organizations used due care not to delegate substantial responsibility to individuals that it knows do not have the ability to implement organization wide risk reduction processes?

Have the standards been sufficiently enforced through appropriate methods such as discipline of employees who violated ethical policies?

5.2. State of the straits

Apply a similar analysis to the non-profits working in the fields of environmental justice. Do you notice differences in culture and sustainability? Gaps in Power.? What do you conclude?

3. Some sample questions for the students to ask the business community would be the following: (Suggested by Non-Profit ERAACE)

- How does your organization define environmental harm?
- What environmental harm is commonly caused by your industry?
- How does your organization mitigate or reverse environmental harm?
- What success has your organization had with mitigating or reversing environmental harm?
- What failures has your organization had with mitigating or reversing environmental harm?
- What are positive impacts your organization has on the local community?
- What are negative impacts your organization has on the local community?
- We believe this reframing of the service component refrains from exploiting the impacted communities.
- We also believe implementing a power analysis in relation to bioethics is critical. We believe the questions below could be useful for your students.

- Questions for analyzing power:
- What kind of power do primary /companies have?
- What kind of power do communities have?
- What are the implications of these power distributions on bioethics?
- How is power accounted for in theories of bioethics?
- Also,
- What are the rights of natural systems?
- What are the rights of communities to natural systems?
- What is exploitation? Who profits? Who suffers?

5.3. Institute student outcomes: Arising out of values of the social change model

As a result of the FCCP project, students will be able to…

- Value #1: Self Awareness & Reflection-
- Value #2: Character & Integrity-
- Value #3: Compassion Through Service-
- Value #4: Common Purpose-
- Value #5: Developing Relationship-
- Value #6: Team Building Through Service-
- Value #7: Engagement with Diverse Communities-.
- Value #8: Common Good and Social Justice-
- Value #9: Social Change Through Service-

5.4. Sample size calculation

- EPA enforcement and compliant data for two highly polluted zip-codes was pulled. A sample of 132 companies was constructed.
- 48209 – 96 Companies
- 48217 - 36 Companies
- Total = 132 Companies
- The data identifies 4 parameters to gauge enforcement and compliance. The following data is

aggregated and is not per company and it representative of 5 years.

- Significant Violations: 3 = 2.27%
- Quarters with Non-Compliance:
- 17 Companies,
- Total Violations: 116.
- Mean:0.91,
- St. Dev:2.94
- 12.87%
- Facility Inspection Count:
- 32 Companies,
- Total: 55,
- Mean: 0.42,
- St.Dev: 2.09
- 24.24%
- Formal Enforcement 5 Year:
- 9 Companies.
- Total: 15,
- Mean: 0.1,
- St. Dev: .507
- 6.8%

- 2 Cohorts:
  - Foundation of Ethics – (Non-Mandatory/Discussion)
  - Civil Engineering – (Mandatory/Discussion/Research)
- 22 Student, Foundation of Ethics:
  - 14 Business Students
  - 1 Bio-Chemistry
  - 1 Architecture
  - 1 Accounting
  - 1 Elementary Education
  - 2 Criminal Justice
  - 1 Undecided
- 6 Students, Civil Engineering:
  - Total = 28 Students

- Non-Profit Movement in Metro Detroit:
- Metro Detroit Nature Network
- Detroit Zoological Society
- Belle Isle Nature Center
- Michigan Hummingbird Guy – Birding on Belle Isle
- Huron-Clinton Metroparks
- EcoWorks
- Greening of Detroit
- Urban Neighborhood Initiatives
- Detroit Riverfront Conservancy
- Detroit Public School Community District
- Children's Hospital
- Michigan Environmental Council
- Southeast Michigan Land Conservancy
- Friends of the Detroit River
- Grosse Ile Nature and Land Conservancy
- Detroit River International Wildlife Refuge
- US Fish & Wildlife Service
- U of M-Dearborn Bird Observatory
- Detroit Audubon = 6000 Members
- Total=19

5.5. Hypothesis 1

The non-profit ERACCE is concerned with the imbalance of power between the non-profits involved in the movement of environmental justice and the business community.

Such an unbalance of power can occur due to a few factors such as;

- Political Influences
- Lobbying
- Bribing
- Extortion
- Coercive Power

5.6. Assumption 1

I set a benchmark of an average of 50% inspection rate as a measure of power balance.

Hence, I take a 95% degree of confidence and construct the hypothesis.

Significance Level = $\alpha = 0.05$

Null Hypothesis, Mean of Inspections =50%

Alternative Hypothesis Mean of Inspection ≠50%

Results

Hypothesis 1.

This is a two-tail test because of a not equal to sign in the alternative hypothesis.

This is a normal distribution testing a population mean with a large sample size and a known standard deviation, the test statistic is the standard normal calculated by a z-score.

$$z = \frac{\bar{x}-\mu_0}{\frac{\sigma}{\sqrt{n}}} = \frac{24.24-50}{\frac{2.09}{\sqrt{132}}} = -\frac{26}{33.77} = -0.7699 = P - Value = .441893$$

Decision: the rule is that if the P-value is less than or equal to the alpha, reject the null hypothesis. If the P value is greater than alpha, fail to reject the null hypothesis.

$\alpha = 0.05$, $P - Value = .441893$, Hence, in our case the P-Value<Alpha and hence we are able to reject the null hypothesis.

Key Findings: Hence, I reject the hypothesis that there is a power balance between the business community and the non-profits involved in the environmental injustice. This is because the benchmark vis ā vis the null hypothesis is rejected.

6.1. Cohort results

Foundation of Ethics: The 22 Students in the Foundation of Ethics Class were asked to volunteer for the project and the project was made non-mandatory for them.

The students were asked to gauge their interest and availability on a scale of 1-5.

Total Points = 22 x 5 = 110

Total Points Achieved = 70/110 = 63.63%

Hence, the approval rate of the project was 63.3%

Key Findings: 8 of 36% of the students chose to do the project and we overachieved our minimum criteria of 7 students required for the project. Furthermore, all students participated in discussions.

6.2. Civil engineering

Key Findings: 6 students in the civil engineering were asked to volunteer for the project. All students agreed to do the project. Furthermore, the project was made mandatory for them as it fit curriculum patterns. All student participated in discussion and research. Hence a 100% participation rate from Civil Engineering.

6.3. Non-profits

Key Findings: During the course of the year I was able to establish contact with one primary non-profit, ERACCE and 3 other nonprofits. This more than enough satisfied the proposal criteria of partnering with one non-profit as well as the request by the primary non-profit ERACCE to establish communication channels with the additional non-profits involved in the movement. Hence, the result was a 100% achievement of the goal to establish partnerships with non-profits.

6.4. Site visits

Key Findings: During the course of the project I was able to survey some surrounding areas in close vicinity to University of Detroit Mercy. Some sites included;

- Winter 2020: 67 hrs (paid) Fall 2019 Semester 67 hrs, Summer 2019 20 hrs, Winter 2019 20 hrs
- Palmer Park
- Bagley District
- Detroit International Wild Life Refuge
- Detroit Downtown(PYC Leadership Cohort 2019)

Discussion

7.1. Initial perceptions

The project was set-up well and towards the end of Fall 2019 much of the work was completed and ready to be implemented. During the leadership class I reflected on the project as well as reached out and established relationships with the non-profits. The project started off well in the Winter. I presented to the students in the Foundation of Ethics class and early morning class. Even then we received 63.3% rate of approval. Everyone wanted to do the project with some varying of interest. I then presented to the Civil Engineering Class and the project was made mandatory for them as it fit their studies. This was an important development as I now had two faculty sponsors. I visited the Henry Ford Museum after the presentation as part of my non-work study with the King Chavez Parks and documented the visit in this picture. The presentations were also documented to show engaged students. I then distributed additional research material to the student over email and we were all set for an engaging project. A few things stood out such as constraints about students' availability and the deliverables were changed according. The project was kept open and the non-profit agreed to visit to give a presentation to the students. The onset of the Covid

virus was sudden because soon after the mid-terms when the students were able to engage fully in the project. The research criteria that was developed was strong enough to withstand such an onslaught surprisingly it being a crisis very much in the sphere of bio-ethics. The students from civil engineering wrote reflections paper even though they were revised in light of the recent circumstances with Covid. Covid was certainly unexpected especially for students, even for me, even though towards the end of January, from the news coming in from South Asia was pointing towards a crisis it was never expected that it would reach the US and cause a shut-down like present day. I was in many ways able to stand back from my personal virtues but in many ways some fears were confirmed especially when hoarding took place earlier in the crises. But this bias was also offset by many acts of charity that took place in parallel to the hoarding. I definitely believe that this experience has and will make me develop as a leader. Not only because I trained for it during the course of the project but also because extreme circumstances were thrown at me that have required behavior befitting a leader.

7.2. Major findings

EPA and EJ Data.

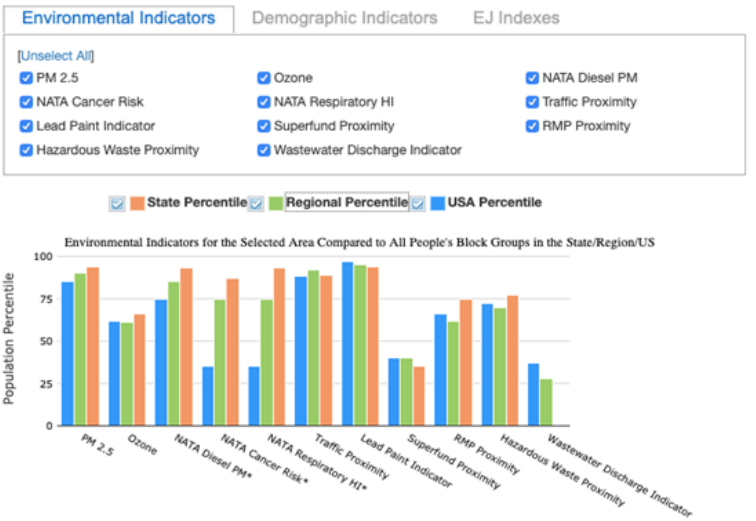


Figure 13. *Environmental indicators*

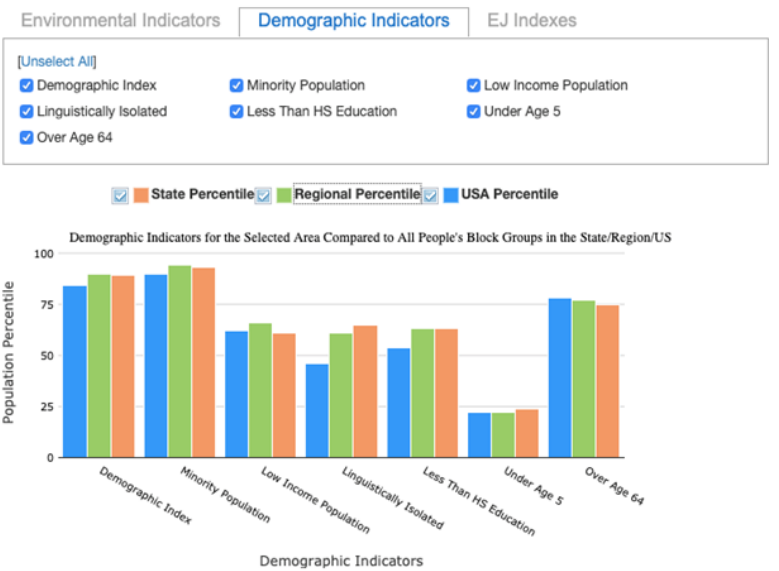


Figure 14. *Demographic indicators*

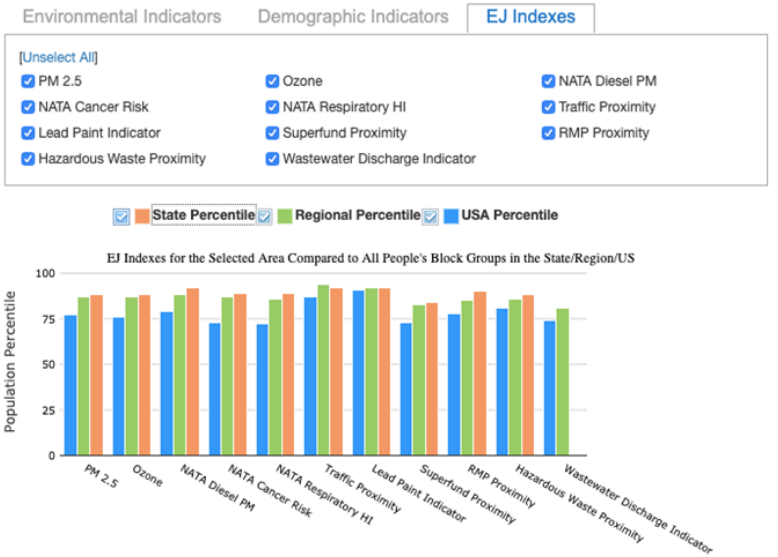


Figure 15. *EJ indexes*

7.3. EPA and EJ Data. 8 Key Factors

Nata Respiratory Levels

7.3.1. What is NATA

♦ The National Air Toxics Assessment (NATA) is EPAs ongoing review of air toxics in the US. EPA developed NATA as a screening tool for state and local and tribal air agencies. Nata's results help these agencies identify which pollutants emission sources and places they may wish to study further to better understand any possible risks to public health from air toxics.

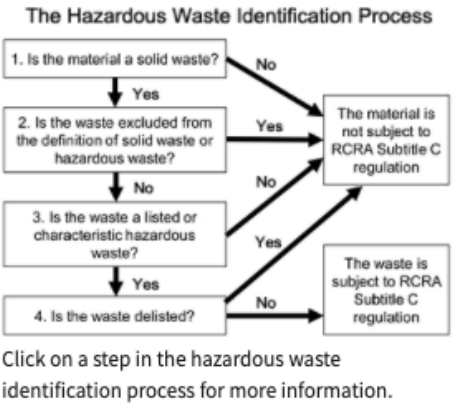
♦ NATA gives a snapshot of outdoor air quality with respect to emissions of air toxics it suggests the long-term risks to human health risks if air toxics emissions are steady over time.

♦ Hence, with a disease such as Covid which is a respiratory disease high NATA respiratory Levels will have a definite impact on the health of the citizens.

♦ Currently the NATA respiratory is very high in comparison to regional and national levels.

7.3.2. Hazardous waste proximity

Hazardous waste that is improperly managed poses a serious threat to human health and the environment. The Resource Conservation and Recovery Act (RCRA) passed in 1976 was established to set up a framework for the proper management of hazardous waste.



As hazardous waste is defined a waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment, being in close proximity to waste can have a detrimental impact on the health of the citizens. With the impact of virus such hazardous waste leader to further health complications. Currently the State level is at a high point.

7.3.2. Waste water discharge

The collection and treatment of domestic sewage and wastewater is vital to public health and clean water. It is among the most important factors responsible for the general level of good health in the US. Hence, Sewers coed sewage and wastewater from homes, businesses and industries and deliver it to wastewater treatment facilities before it is

discharged to water bodies or land or reused. THE NPDES establishes discharge limits and condition for discharges from municipal wastewater treatment facilities to waters of the US. For the area selected by EJ screen and hence in close proximity to Detroit Mercy, the Waste Water Discharge indicator is higher than the national average. Furthermore, Waste Water Discharge facilities are mostly found in low-income areas.

7.3.3. NATA cancer risk

NATA estimates the cancer risks from breathing air toxics over many years. It also estimates noncancer health effect for some pollutants, including diesel particulate matter (PM). NATA calculates these air toxics concentrations and risks at the census tract level. Currently the NATA Cancer Risk at state level in Michigan is way higher than the regional and national levels.

7.3.4. Less than high school education

As EJ Screen is a tool that was developed to gauge environmental injustice, the tool combines environmental data with demographic data. Hence, we look at indicator that illustrate environmental just issues. One such indicator is High School Education. At the current point in time the local level for less than high school educated is higher than the regional and national levels. A less educated population means lower income, and hence, exposure to negative environmental issues and thus environmental injustice. Furthermore, it also leads to a pool of worker that is not trainable during a pandemic.

7.3.5. Linguistically isolated

As the area that has been selected by EJ Screen to determine indicators of environmental justice, indicates a high level of people who are linguistically isolated. This causes a problem because of linguistic barriers these individuals are not able to receive the help that they require. Furthermore, the language barriers exclude them for asking

for help in case of emergency. Hence, a linguistically isolated population will experience environmental injustice, unless advocated for. Currently the linguistically isolated population for the area selected is way higher than the regional and national levels.

7.3.6. Minority population

The thrust of environmental justice campaigns is to prevent minorities and low-income workers from environmental injustice. The reason that the minority population faces this problem is because of living in areas that lead to environmental injustice or working in positions that lead to environmental injustice. Currently the amount of minority population screened EJ in the current area is way higher than the national and regional averages.

7.3.7. Low income population

Low income population faces a dire risk due to environmental injustice. Not only do they work at jobs that may expose them to dangerous environmental conditions but also live in areas that are target of environmental injustice. According to the Data from EJ Screen the Low-Income Population level is

Initiative for Corporate, local, state or federal level that could lessen the underlying problems that the agency needs to address.

The project deliverable was designed to mitigate the impact of the problem hence the power imbalance between the non-profit and the for profit. Hence, for the corporation the help would come in the form of volunteers and workers engaging in research on sustainability and providing services to the companies at risk of environmental violations. Bio-ethics has become more so important

The corporations are advised to engage with students in project of sustainability. Furthermore, the local, state and federal level it is advised that there remains a constant focus on developing Michigan's strength in bio-diversity,

environmental justice, manufacturing, health-care. The students were also required to visit the reserves and sanctuaries. This did not happen due to Covid, although active involvement with activities that require developing a relationship with nature is advised. The government should also at all levels support national parks, reserves, etc. In conjunction with the community as well as the corporations. International Wilde Life Refuge is a good example of shoreline engineering efforts between the US and Canada and these should be adopted.

Furthermore, key indicators relating to the environment should be worked on to reduce the harm occurring from them. The same stands for the harm that can occur from biohazards as well as emerging technologies.

Hypothesis: The main concern that the non-=profit ERACCE had with the current circumstances is the imbalance of power between the non-profits and the business community and this is where they believe the case of environmental injustice arise. Hence, to ascertain the validity of this concern, I set up a hypothesis with a benchmark of inspections. Hence, a 50% average inspection across the 132 companies during a 5-year period is set as the null-hypothesis. I conduct the calculations using a Z-Score calculation and reject the null hypothesis that there is a power balance present. More inspection need to take place over a 5 year period to reduce the power imbalance.

Cohort Results: The faculty sponsors, and the respective cohorts were chosen due to their individual strengths. Hence, volunteers from two courses participated. Foundation of Ethics and Civil Eng'. This allowed for a diverse group of students as well as a controlled group. The participation was optimistic, with all students in the Foundation of Ethics class showing interest with a strong approval rating of 63.3%. A 100% participation rate was achieved in Civil Eng'as the project fit the curriculum.

Non-Profits: The project requirement was to partner with a non-profit for the proposal. I was able to partner with ERACCE as the primary non-profit and this was because of their prior involvement with the University. Furthermore, during the course of the deliverable designed involved outreach with sanctuaries and non-profits involved in the movement of environmental justice and conservation. Therefore, partnerships and communication took place with, Detroit International Wild-Life Refuge

Site Visits: It was integral to the project that the close vicinity of Detroit Mercy be surveyed. Hence a survey of developments such as Bagley District, University District, Palmer Park were undertaken. Participation in the Leadership Class as required by the Ford Grant provided an excellent opportunity to survey Detroit Downtown. Furthermore, a visit to the Ford Museum. Provided for an excellent kick-off to the project and community discussions.

Conclusion

The research although not very comprehensive still does some justice to the region. Detroit, Michigan has for long had a history of both success and failures and is an area that is involved in a constant battle to recreate it-self. The imbalance of power in the region leads to results that impede the growth and flourishing of the region as well as causing many a case of injustice. The strength of the research is in the fact that it was conducted through a group of students who can be taught to learn from this research and be socially contribute. Further research and work is necessary if the region is to achieve optimal growth. The close proximity to Canada and facilitates international trade and investment. A world class academic system further accelerates this progress.

Special thanks

This chapter and the project were made possible with thanks to University of Detroit Mercy, Ford Community Corps and prior affiliations with University of California Davis, University of California Berkeley with special thanks Yale School of Forestry.

Special thanks to: Rev. Tim Hipskind, S.J, University of Detroit Mercy: Dr. Martin Leever, University of Detroit Mercy, Dr. Alexa Rihana-Abdallah; Dr. Gregory Clark, UC Davis; Dr. Paul Romer, NYU and Dr. William Nordhaus Yale University; Dr, Tina Ruli, UC Davis, Dr. Roberta L Millstein UC Davis.

Non-Profits: ERACCE, Detroit Audobon, Detroit International Wildlife Refuge, Belle Island

"Examine each question in terms of what is ethically and aesthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise." – Aldo Leopold Land Ethic.

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9 The Greek letters: Scenario analysis with a reverse butterfly spread

Introduction

The analysis involves calculating the gain or loss on their portfolio over a specified period under a variety of different scenarios. The time period chosen is likely to depend on the liquidity of the instrument.

The scenarios can either be chose by management or generated by a model.

Considering a bank with a portfolio of option on a foreign currency. There are two main variables on which the value of the portfolio depends.

1. The Exchange Rate
2. The Exchange Rate Volatility.

Profit and Loss Realized in two weeks under different scenarios (millions of dollars)							
	Exchange Rate						
Volatility	0.94	0.96	0.98	1	1.02	1.04	1.06
8%	102	55	25	6	-10	-34	-80
10%	80	40	17	2	-14	-38	-85
12%	60	25	9	-2	-18	-42	-90

Suppose the exchange rate is currently 1.0000 and its volatility is 10% per annum. The profit and loss experienced during a two-week period under different scenarios. This table considers seven different exchange rates and three different volatilities. Because a one standard deviation move in the exchange rate during a two-week period is about 0.02, the exchange rate moves considered are approximately one, two, and three standard deviation. In the above table the greatest loss in the Lower right corner of the table. The loss corresponds to the volatility increasing 12% and the exchange rate moving up to 1.06%. Usually the greatest loss in a table such as this occurs at one of the corners of the corners, but this is not always so.

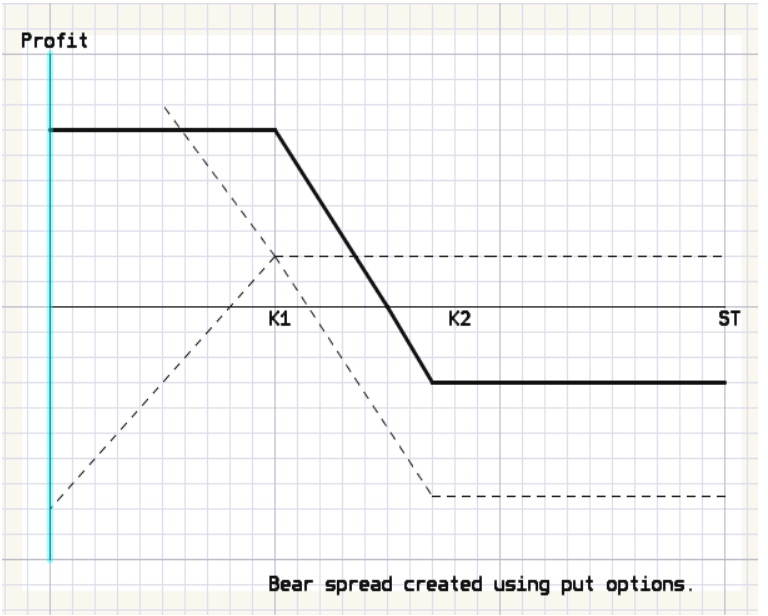
Reverse butterfly spread

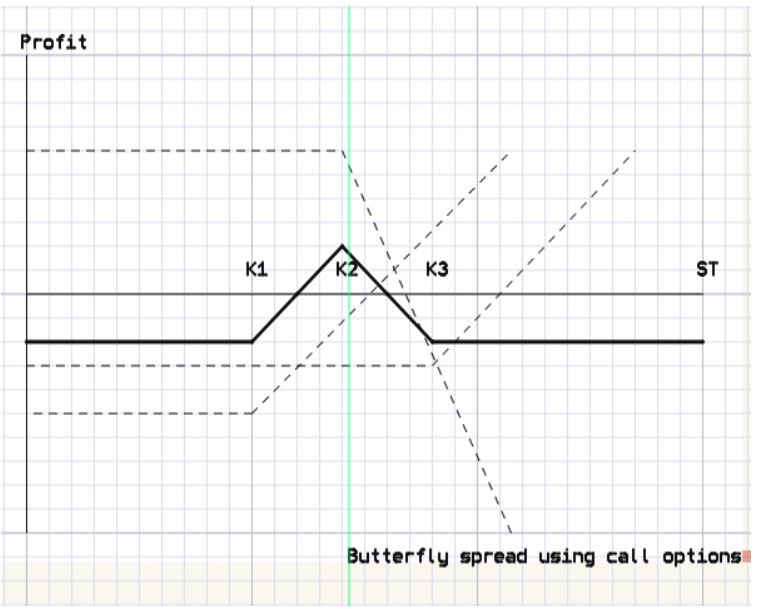
Hence, we consider an example where the situation where a bank's portfolio consists of a reverse butterfly spread.

A butterfly involves positions with three different strike prices. It can be created by;

- K1: buying a call option with a relatively low strike price,
- K3: buying a call option with a with a relatively high strike price,
- K2: selling two call options with a strike price halfway between K1 and K3.

The Greek letters: Scenario analysis with a reverse butterfly spread





Generally, K2 is close to the current stock price. The patterns of profits from the strategy is shown in the "Butterfly spread using call options"

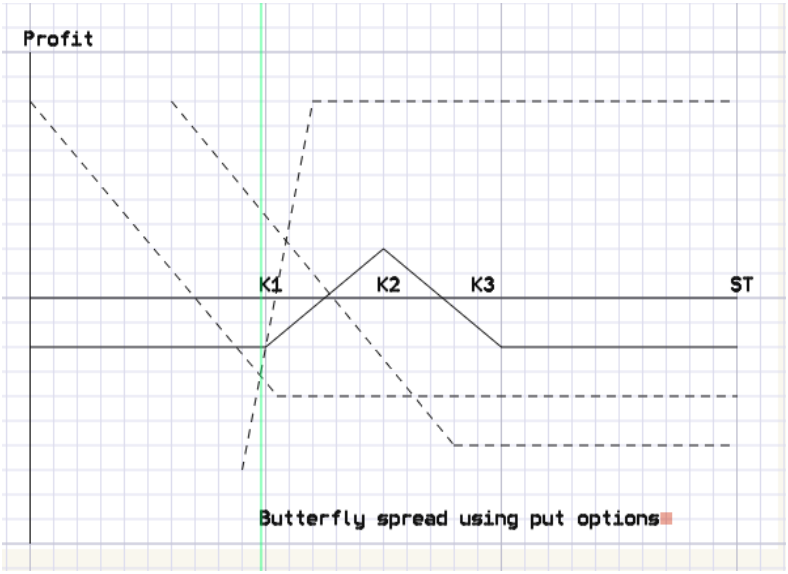
A butterfly spread leads to a profit if the stock price stays close to K2 but gives rise to a small loss if there is significant stock price move in either direction. It is therefore an appropriate strategy for an investor who feels that large stock prices move are unlikely. The strategy requires a small investment initially.

The payoff of the butterfly spread is shown as follows. Suppose that a certain stock is currently worth $61. Consider an investor who feels that a significant price move in the next six months is unlikely. Suppose that the market price of 6-month calls are as follows.

Stirke Price ($)	Call Price ($)
55	10
60	7
65	5

The investor could create a butterfly spread by buying one call with a strike price of $55 strike price. It costs $10+5-(2x$7) =$1 to create the spread. If the stock price in six months is greater than $65 or less than $55 than total payoff is zero and the investor occurs a loss $1. If the stock price is between $56 and $64 a profit is made. The maximum profit, $4 occurs when the stock price in six months is $60.

Payoff of a Butterfly Spread.				
Stock Price Range	Payoff From First Long Call	Payoff From Second Long Call	Payoff From Short Calls	Total Payoff
St < K1	0	0	0	0
K1<ST<K2	ST-K1	0	0	ST-K1
K2<ST<K3	ST-K1	0	neg 2 (ST - K2)	K3-ST
ST>K3	ST-K1	ST-K3	neg 2 (ST - K2)	0
*These payoffs are calculated using the relationshp K2 = 0.5(K1+K3)				



Butterfly spreads can be created using put options. The investors buys a put with a low strike price, buys a put with a high strike price and sells two puts with an intermediate strike price as illustrated above. The butterfly spread in the example just considered would be created by buying a put with a strike price of $55, buying a put with a strike price of $65 and selling two puts with a strike of $60. If all call options are European, the use of put options results exactly the same spread as the use of call options. Put-call parity can be used to show that the initial investment is the same in both cases.

Conclusion

A butterfly spread can be sold or shorted by following the reverse strategy. Options are sold with strike prices of K1 and K3 and two options with the middle strike price K2 are purchased. This strategy produces a modest profit if there is a significant movement in the stock price.

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10 Global strategic innovations in the energy sector

Introduction

An important global sustainable goal is improving quality of the economy, technology and human well-being within resource and environment limits. Therefore, there is much research on eco-efficiency (EE), eco-technology innovation (ETI) and eco well-being performance (EWP) for improving the efficiency of converting ecological consumption into economic benefits technological innovation and human well-being. The results of the chapter indicate that countries with high levels of economic development have much better EE, ETI and EQP levels than low-income countries (Yu, Liudan, Chenyand, & Heshan, 2021).

The global economy has climbed from 1.37 to 85.93 trillion dollars during the period from 1960 to 2018. However, this rapid economic growth has resulted in excessive consumption of resources and ecological problems. Example of an increase is that the total primary energy supply (e.g., coal, natural gas and oil) has increased from 8.8

to 13.9 billion tons over the past thirty years. At the same time, it was reported that global greenhouse gas emissions have increased nearly 2 times over, nitrous oxide emission have increased 1.5 times over from 1970 to 2012 and the forest area has decreased by nearly 1.3 million from km^2 from 1990 to 2016. Meanwhile many countries such China, India and the USA have suffered severe air pollution (Yu, Liudan, Chenyand, & Heshan, 2021).

Even though GDP is produced by resources, labor and capital in human economic activities. However, these activities concurrently trigger negative impacts on the environment and unavoidable lead to environmental pollution such as solid waste, air pollution and waste water. Hence, when studying the win-win balance between global economic development and environmental protection is both important and meaningful. Eco- Efficiency (EE) is a valuable too for measuring the level of sustainable development, as it is directly connected economic resource and environmental impacts. Moreover, eco efficiency provides a direction for examining sustainability, as it reflects the capacity to produce more desirable output such as GDP, while consuming fewer natural resources and less ecological havoc (Yu, Liudan, Chenyand, & Heshan, 2021).

Furthermore, it is also essential to guarantee that the resources, labor and capital inputs are efficiently converted into technology innovation and human well-being levels in different countries. Eco-technology innovation (ETI) and eco-well-being performance (EWP) require producing more technology and improving human well-being, while decreasing the consumption of resources and eco-environmental impact. Hence, the analysis of EE, ETI and EWP (3E) in different countries could provide a new research perspective for governors to promote global sustainable development. Hence, the aim of this study is to depict sustainable development in different countries in

terms of eco-efficiency, eco-technology innovation and eco-well-being performance. The study innovatively evaluates 3E performance in 102 individual countries. The results of this research support effective policymaking to incentivize sustainable development worldwide. The chapter also offers a new perspective on the exploration of ecological efficiency considering technology innovation and human well-being indicators, which expands the ecological efficiency literature (Yu, Liudan, Chenyand, & Heshan, 2021).

Eco-Efficiency: Eco-efficiency (EE) which accounts for natural resources, the economy and eco-environmental impacts is usually used to examine sustainability performance at the industrial, regional and national levels. An extended data envelopment analysis (DEA) model can also explore EE performance as was done for Chinese regions during the period from 2000 to 2010. The studies suggested that the Chinese government should simultaneously improve management and technology levels to build an ecological civilization. The DEA model examined the EE of 21 cement industries in different countries. The results suggest that countries with strong environmental regulations such as European countries were the most efficient performers. Furthermore, the DEA model was used to explore Chinese cement manufacturers, EE performance, suggesting that China should reduce pollutant emission by adopting advanced technology. The two stage Super SBM model can also be used to measure EE as was done for 21 countries in Guangdon province China. Other studies have included EE evaluation of 22 OECD countries showing that Hungary, Turkey and the US exhibit poorer EE performance and that Switzerland is the highest efficient country (Yu, Liudan, Chenyand, & Heshan, 2021).

Eco-Technology Innovation: Eco-technology innovation (ETI) which plays an essential role in decoupling environmental problems and economic development is

considered an important facilitator of economic growth. Hence, ETI is defined as the generation of new services, processes, products and systems that greatly increase economic growth but offer a decrement in environmental pollutants. Therefore, ETI has obtained importance in the literature because it adds value to company, city and country competitiveness and moves towards sustainability. Based on the DEA model, explored eco-technology innovation in OECD countries indicating that Switzerland, Ireland and Iceland are the top three eco-innovative countries. Similarly, the two-stage DEA model to study the eco-technology innovation performance of 34 OECD countries using high-technology exports, and electricity production as indicators of ETI (Yu, Liudan, Chenyand, & Heshan, 2021).

Eco-well-being-performance: Eco-well-being performance (EWP) which focuses on improvements in human well-being rather than the growth of traditional GDP is defined as the efficiency of converting natural resources into human well-being while producing less environmental pollution. The 3E model has been used to measure the performance at the city, industrial and regional level. Nevertheless, few studies have assessed EE, ETI and EWP at the global level (Yu, Liudan, Chenyand, & Heshan, 2021).

Two Stage Super SBM Model

We can utilize the proposed two-stage Super SBM model for estimating the global EE, ETI, and EWP, a set of inputs, intermediate products and outputs should be selected. According to previous studies, the input indicators should capture the consumption of natural resources, such as energy consumption land area and water consumption. Additionally, the labor force is commonly selected as a non-energy input. Environmental impacts, including wastewater emissions, solid waste emissions, Sox and NOx emission, PM2.5 air pollution, industrial dust emission, and greenhouse gas emission are commonly selected as

emblematic undesirable output in measuring EE, ETI and EWP (Yu, Liudan, Chenyand, & Heshan, 2021).

Analysis of global eco-efficiency

The analysis shows that 12 countries have EE values greater than 1 and are therefore Group 1: Singapore, the US, Switzerland, China, Luxemborg, the Netherlands, Japan, the UK, Norway, France, Brazil and Germany. Amont the 12 countries, there are 10 countries at the HI level, excelpt China and Brazil at the UMI level. This suggests that environmental protection mechanisms and energy-saving techniques are more advanced in highly economically countries. (Yu, Liudan, Chenyand, & Heshan, 2021).

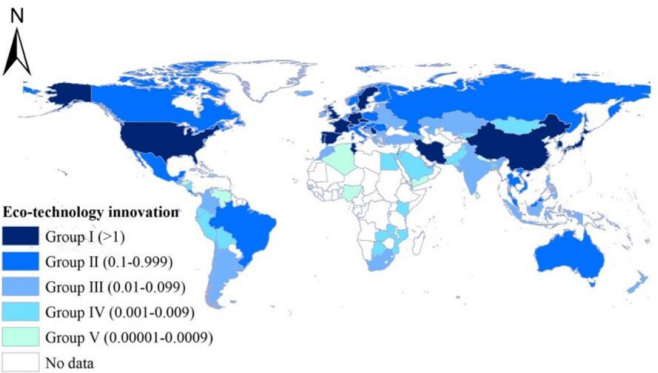
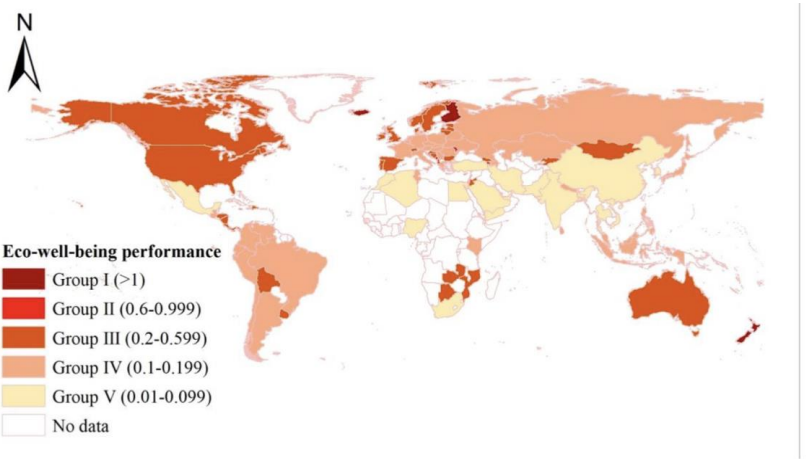


Fig. 5. The overall eco-technology innovation performance of the 102 sample countries.

Analysis of global eco-technology innovation

17 out of the 102 countries have ETI values greater than 1 and are in Group I. These 17 pioneering countries include the US, the Republic of Korea, Singapore, Switzerland, China, Japan and Germany there are also 13 HI level countries and 3 UMI level countries. It is noteworthy to note that most countries are in Groups II, IV and V with eco-technology innovation values lower than 0.1. The findings suggest that overall ETI performance is low across the world,

suggesting that most countries need to focus on green technology innovation, especially technologies for energy-saving and environmental protection. It is all worth noting that countries in Africa and Asia present poorer ERI performance than those in Europe. In general, their lower economic level means there are limited resources for promoting the development of technology innovation in many African and Asian countries (Yu, Liudan, Chenyand, & Heshan, 2021).



Analysis of global eco-wellbeing performance.

There are only 6 countries that have EWP values greater than 1 and are in Group 1 including Iceland, Montenegro, Brunei, Darussalam, Malta, New Zealand and Finland. Surprisingly, some HI and UMI level countries have lower EWP values and ranks. Hence, US, China and Japan have large scale economies but the EQP values in these three countries are ranked 32. 54 and 101 respectively. The findings are similar suggesting that many developed countries have lower values in terms of the index of ecological well-being performance values. The distribution of global resource consumption and pollutant emissions are

polarized, which leads to disparities in EWP performance in countries with different income levels. China has the largest carbon emissions, similarly US and Japan are also among the top five carbon emitters in the world. (Yu, Liudan, Chenyand, & Heshan, 2021)

Nexus between natural resources, technology innovation, green energy and financial performance in the Saudi Arabia: Evidence from asymmetric causality test

The global financial crises and the volatilities in oil prices caused a severe negative impact on the Saudi Arabia's earning hence government initiated the policies to decrease its oil dependence and recognized the substantial role of the financial sector Hence, the goal of the study is to recognize the potential role of natural resources, green energy and technological innovations influencing the performance of the financial sector in the Saudi economy. The results confirm that positive shocks of natural resources and technology innovation increase the financial performance in Saudi Arabia whereas the positive and negative fluctuations in green energy have a positive and significant impact on financial performance. Proper allocation for natural resources for improving financial performance is recommended whereas more attention is need to improve technology innovation (Alsharif, & Tong, 2020).

The progress of the financial sector supports technical advancements that decline the cost of information and borrowing, along with introducing reforms in institutional quality. In this regard the role of technological innovation is crucial in leading financial growth. Through innovation the financial sector is likely to benefit from cost reduction, resource allocation and efficient evaluation of administrative and financial projects. It further resulted in enhancing the

capability of mobilizing savings and investments and thus stimulates growth, especially in emerging economies (Alsharif, & Tong, 2020).

The benefits of an efficient financial sector lie in the ability to support investment decision of the organizations permitting economies to perform effective management of resources and motivating technological advancements to boost growth. On the other hand many studies establishes that the growth of the financial sector carries a negative environmental impact by enhancing energy dependence in both developing and developed economies, whereas rise in financial sector performance augments energy demand in the resource dependent economy of Saudi Arabia, thus leading to establishing a positive financial sector expansion in the form of resource allocation and technology spillover flourishing growth by also carries a negative impact on the environment by enhancing energy intensity in the financial structure leading to threatens the country's prospect of sustainable development (Alsharif, & Tong, 2020).

In the current era the significance of environmental sustainability is among the top priorities of several economies. Considering the inevitable role of energy utilization in the country's growth, the role of green energy offers a solution to meet the economic need of the energy in a country by exerting minimal pressure on the environment. The link between the financial sector and green energy is also strengthened by witnessing the upsurge in the investments of green energy projects that can avail energy efficiency along with offering due protection to the environment. Furthermore, it has also been state that the eco-friendly financial sector is encourage by offering subsidies to innovating technologies and R&D plans of green energy that can sustain the country's energy needs without dismantling environmental conditions. Hence, the benefits of financial advancements are ascribed from the smooth distribution of

resources and investments that can carry positive spillovers into numerous industrial and service sectors of the country, as well as on environment through channeling energy needs in silver, natural gas, iron core, phosphate, tungsten copper, zinc, Sulphur etc. (Alsharif, & Tong, 2020).

The country is included among the top twenty economies of the world. The economy of Saudi Arabia is exclusive for being extensively resource dependent and earns 75 percent of the revenues from natural resources. Also, Saudi Arabia is believed to the Energy Superpower for being the largest exporter of oil in the world while owing second largest petroleum and fifth-largest natural gas reserves with a total worth of 33.2 trillion dollars. Hence, the role of natural resources in molding Saudi Arabia's financial structure is pertinent as they underlie the potential to upset financial development which can carry a negative impact on the country overall growth (Alsharif, & Tong, 2020).

In conclusion the objective of the study is to analyze the empirical significance of the factors that contribute to the financial sector development of Saudi Arabia. In this regards the goal of the study is to recognize the potential role of natural resources, green energy and technological innovations in influencing the performance of the financial sector in the Saudi economy. The findings indicate that all variables have significant and asymmetric impact on financial performance in Saudi Arabia. Moreover, the results confirm that positive shocks of natural resources and technology innovation increase the financial performance in Audi Arabia however the positive and negative fluctuation in green energy have a positive and significant impact on financial performance. The asymmetric causality confirmed a unidirectional causal connection from natural resources to financial performance however a bidirectional causal connection is found from technology innovation and green energy to financial performance and vice versa. The policy

makers need a proper allocation for the natural resources in order to improve financial performance Moreover, the government should pay more attention to improve technology innovation strategies which will also help to improve the generation of green energy that ultimately boost the financial performance of Saudi Arabia (Alsharif, & Tong, 2020).

Influencing factors of energy technical innovation in China: Evidence from fossil energy and renewable energy

Based on China's provincial panel data from 2001 and 2015, the drivers of energy technological innovation, e.g.: energy price, public financial policy, knowledge sticks, energy structure and environmental regulation are analyzed by using the generalized method of moment (GMM). Hence, there is an empirical analysis that influence factors of energy technological innovation from perspective of fossil energy and renewable energy. The specific conclusion obtained in this chapter are: 1. The impact of the energy price on fossil energy technological innovation is greater than renewable energy, which means that the current energy price in China is much lower than its optimal level and the development of renewable energy technology innovation heavily relies on governmental policy support. (3) The accumulation of energy technology innovations will be conducive to the vertical spillover effect of knowledge and further encourage the development of energy technology (Yulin, Zhihui, & Xingmin, 2018).

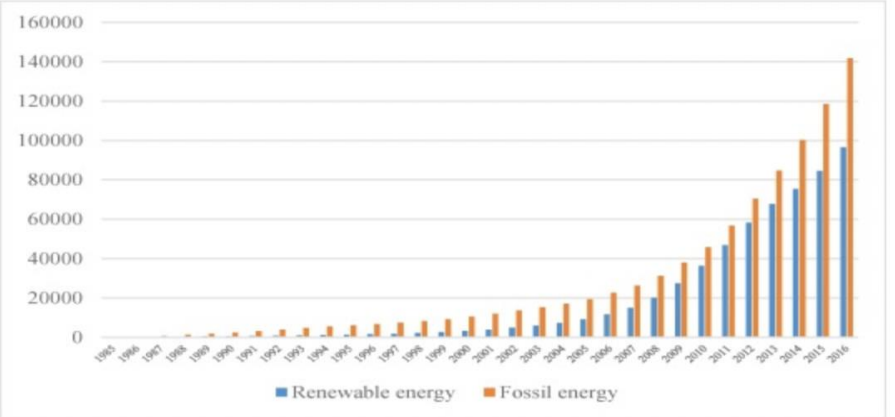
Climate change has had widespread influence on agriculture distribution of water resources, forest eco-system, coastal sea level and human health in China. As the biggest developing country studying energy technological innovation is an important channel for China to achieve sustainable development. Firstly, energy technology

innovation is conducive to industrial restructuring and upgrading. The energy-intensive industries in China such as steel, petrochemical industry, building materials industry power generation and coal mining and processing will continuously exist in the near future. Traditional industries often have the characteristics of high energy consumption and high environmental pollution. Therefore, technological progress can promote energy saving and emissions reduction for these energy intensive industries because it can effectively improve energy efficiency. What's more, energy technology progress helps to promote the development of strategic emerging industries which have higher energy efficiency. This is because mastering core technologies has primary impact on the development of emerging industries. Hence, the development of energy technology innovation gives impetus to emerging industries. such as new energy industry and energy saving & environmental protection industry (Yulin, Zhihui, & Xingmin, 2018).

Emerging industries which play an important role in industrial restructuring and upgrading rely on technological breakthroughs and have a significant effect on economically sustainable development. Secondly, energy technology innovation can effectively optimize China's energy consumption structure. The massive burning of fossil fuels has caused severe environmental pollution problems and China has consumed the largest amount of fossil energy and emitted a lot of CO2 in the world. If the energy consumption in China does not change, the environmental pollution problem will become more prominent. Energy technical progress can effectively increase the proportion of renewable energy consumption since it can reduce costs of renewable energy and stimulate the commercial application of renewable energy. Thirdly energy technology innovation can reduce the external cost of the environment due to the use of fossil energy in the social production process. The coal-based

energy structure in China has led to a large number of emitted pollutants as well as serious external environmental costs which then post a huge challenge to the sustainable development of the Chinese economy. Therefore, green technology innovation can better achieve the goal of energy conservation and emission reduction in the whole process of production, thus effectively dealing with environmental externalities (Yulin, Zhihui, & Xingmin, 2018).

In China, fossil energy has dominated the energy structure and emitted a large number of greenhouse gases for a long time. In addition to developing renewable energy, improving fossil energy efficiency is also one of the most effective ways for energy-saving and emission reduction. Therefore, it is really important to develop fossil energy techniques. In general, this chapter contributes to the existing literature in the following three aspect: Firstly, we search the number of energy patents for different energy types by using the latest patent code, which accurately reflect the existing energy technological innovations. Secondly there is a huge difference between the development of renewable and fossil energy due to their different status in the national economy and society. Thirdly the influencing factors of energy technological innovation from two aspects and provide some empirical results for induced innovation theory and technology-push innovation theory which enrich literature on these two different innovation theories (Yulin, Zhihui, & Xingmin, 2018).



In conclusion as there is global climate change, it is of great theoretical and practical significance to study the influencing factors of energy technological innovation. Hence, the chapter provides empirical evidence for induced innovation theory and technology push innovation theory but also provide some policy proposals to promote energy technological progress. The impact of energy prices, government science and technology expenditure, technological knowledge stock, energy structure and environmental regulation on energy technological innovation from two side of renewable energy technologies and fossil energy technologies. The energy price has different impacts on different types of energy technological innovation. The adjustment of energy price has a greater significant impact on the development of traditional fossil energy technology than renewable energy technology. Compared with fossil energy, the advantage of renewable energy technologies are renewable resources and environmental benefits. In conclusion renewable energy cannot compete with traditional fossil energy in the economy and application scale for a long time, and the development of renewable technologies requires the support of energy price. The implementation of R&D and the

promotion of energy technologies require the government financial support (Yulin, Zhihui, & Xingmin, 2018).

Energy technological innovation has great benefits for the environment and society but it also needs a largen umber of investments in the early stages of development since there are certain risks and uncertainty in the R&D. Therefore, the government should play a leading role to promote the large-scale application of renewable energy technologies and publish some policies to encourage enterprises to invest in the R&D. The existing knowledge stock has a positive impact on promoting the innovation of energy technologies. The benefits brought from technological innovation cannot be exclusively owned by innovators and the existing knowledge stock will enable the later researchers to bear lower research costs and risks than previous innovations. Therefore, improving the capability of independent innovation and localization of energy technologies can exert the vertical spillover effect of knowledge and stimulate further research. Fourthly this chapter shows that environmental regulation can promote the progress of energy technology. This result illustrates that environmental regulation is not only economically efficient but also is consistent with the concept of sustainable development (Yulin, Zhihui, & Xingmin, 2018).

Influencing factors of energy technical innovation in China: Evidence from fossil energy and renewable energy

This study extends the Marshallian demand framework to investigate the effects of TI (technological innovation) on energy use in Malaysia. This extended frameworks predicts that TI an exogenous element in the energy demand function, increases energy efficiency and correspondingly, reduces energy consumption at a given level of economic out. Controlling for the effect of TI this study finds that

increasing GDP per capita and trade openness produce a rebound of TI on energy use. Although trade has continuously accounted more than 100% of GDP in Malaysia since the early 1980s the impact of trade on energy use in Malaysia has not been studies; hence, this article incorporates trade openness into an energy function to explore this nexus. TI (technological innovation) is crucial for improving energy efficiency. Although there are other methods of promoting energy efficiency, such as market-based approaches policies and controls the magnitude of the impact of technological innovation. Malaysia has experienced considerable technological innovation with its rapid growth, moving towards achieving developed national status by 202. There is a trend of increasing technological innovation (as measured by the number of patents) in Malaysia from 1980 to 2012 (Fang, Yuanyan, & Xin 2019).

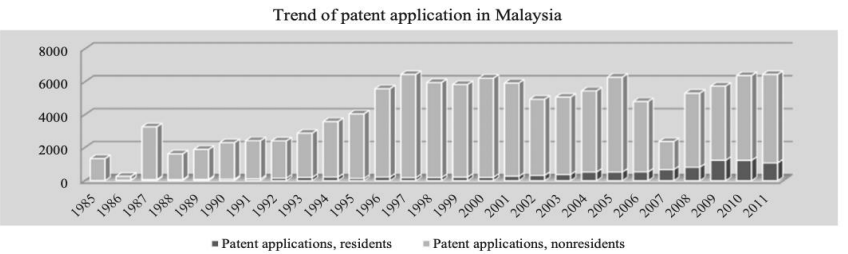


Fig. 4. Trend of patent application in Malaysia.

Trade openness facilitates the penetration of technology from developed countries into developing countries. Technological diffusion promotes energy efficiency when the diffusion takes place through trade openness in the context of European Union member countries. However, measure of trade openness, economic growth and human development influence energy use in the economies of Thailand, Indonesia and Malaysia. In regards to the nexus between technological innovation energy efficiency, technological increases the quality of production by augmenting energy efficiency in

fact, OECD countries experience greater energy efficiency gains due to their sizable technological innovation compared to their developing countries. Outside the OECD found an inverted U – shaped relationship between household final consumption and residential CO2 emissions due to the use of advanced household technologies in Malaysia. Technology may reduce energy efficiency marginally however in absolute terms, it may produce a rebound in overall energy use (Fang, Yuanyan, & Xin 2019).

As an emerging country in Asia, Malaysia is experiencing smooth increasing trend in GDP (per capita). Energy uses per capital is constantly increasing with the changing of growth patten of Malaysia. Due to the domination of sophisticated industrial and service sectors in the Malaysia economy, energy use has increased on a large scale. The development of information and communication technologies as well as technology-based household entertainment compounds energy use. Malaysia is a country thriving in trade, which is considered a prime growth engine, indicates that trade has persistently remained at over 100% since 1998 to 2012. It can be argued that local energy demand is largely derived from trade in Malaysia. The number of patents could be considered a proxy for technology innovation because it indicated the interest of industrial and private organizations in exploring a new technology. In addition, states that technology innovated can be reflected by a quantitative indicator such as the number of patents (Fang, Yuanyan, & Xin 2019).

The article demonstrates that rapid economic growth (eg., GDP per capita) and trade openness are significant factors in increasing energy use in Malaysia during the study period. However, technological innovation helps to reduce energy use by increasing the energy efficiency of production process, which ultimately reduces emissions. The empirical analysis of this study has produced sever interesting

findings. Firstly, the increase in GDP per capita augments energy use over both the short and long run in the Malaysian economy. However, the magnitude of the impact of GDP per capita on energy use is higher over the long run than over the short run. Secondly trade openness also increases domestic energy use over the long run in the Malaysian economy. The findings indicate that technological innovations play an important role in reducing energy use and improving energy efficiency. The largest emerging economies have all built effective systems for the development and deployment of new technologies including low emissions technologies. Thus, policy makers can take serious action on climate change mitigation by improving energy efficiency and increasing the share of renewable energy use in the energy sector. (Fang, Yuanyan, & Xin 2019).

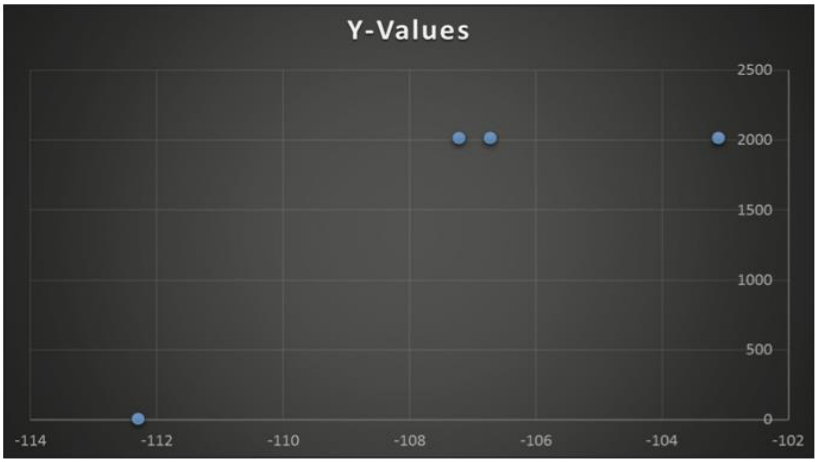
Ensuring renewable energy consumption through innovation R&F and Energy import in Indonesia: A time series analysis

Energy resources have now been scarce as the use of energy has been increased. There is a need to manage resources in Indonesia there has been depletion of these resources accordingly and for this there has been a proposed solution which is to go for the renewable energy resources and energy consumption. Therefore, this research sets the propositions as how factors like innovation resource development and the imports of energy can help ensure renewable energy consumption in Indonesia for the period of 1995-2019. The independent variable for research are innovation, research and development and energy import. The dependent variable is renewable energy consumption and the control variables are population growth and energy consumption. The research proposes significant implications for policy makers to make effective policies for R&D and for

the companies to go for innovation as to use renewable energy. The utilization of renewable energy has been increased globally with the replacement of conventional non-renewable energy sources such as fossil fuels comprising diesel, gasoline, coal etc. The emerging economies and countries focused on the integration of renewable energy sources including solar, wind, hydropower, geothermal and biomass in order to achieve sustainable energy goals and its growth. As in the prevailing competitive environment and limited non-renewable energy sources the generation of renewable energy is considered as the driver of the economic growth and advancement. It is regarded as the essential resource of the country and plays a key role in the improvement of economic and social standard of living. Globally the bulk of energy consumed is shifting from non-renewable energy, such as oil/gas and coal to renewable energy sources such as solar hydropower geothermal and biomass (Purwanto, Sinaga, Hayati, & Sidik, 2021).

The rising trends of advanced technology rising costs for non-renewable energy imports, limited non-renewable resources, environmental concerns and governmental focus towards sustainable energy and preservation of natural environment resulted in generation of renewable along with the high governmental funding due to the concern of protecting the environment boost the renewable energy growth and its market. The technological advancement makes innovation the prominent sources of economic development and a source to get competitive advantage as energy is the essential requirement in every production process and determines the total production output and supply patterns of the country (Purwanto, Sinaga, Hayati, & Sidik, 2021).

Figure 1: Energy imports in Indonesia, as percent from total energy use



Same as the rest of the world, considering the environmental protection concerns and limited energy resources, Indonesia is also pacing towards sustainable renewable energy development through its renewable energy potential such as Solar PV and geo thermal. According to the national energy plan 33% of the total capacity of power plant is targeted by 2025 according to national energy plan (RUEN). Moreover, along with the increasing degree of installed capacity, the level of electricity from renewable energy sources is targeted at 23% by the year 2025. The growing levels of environmental concerns and limited energy sources affects the energy growth patterns and its generation through renewable sources in Indonesia. The study has the following objectives:

1. Analyze the impact of innovation in increasing renewable energy in Indonesia
2. To determine the impact of research and development in increasing renewable energy in Indonesia.
3. Examine the impact of energy import in increasing renewable energy in Indonesia.

It is well known that the role on renewable energy plays an important role in a country. The consumption of renewable energy is not only important for economic and environmental benefits but it also compulsory for other useful benefits. For instance, renewable energy plays an important role in reducing greenhouse emissions. The basic purpose of this following chapter is to analyze the energy consumption by the use of technology, innovation models and energy import. Based on the above analysis it is obvious that saving resources are important but it does not mean that our vision should be confined to it. The primary purpose of the given chapter is to Ensuring Renewable Energy Consumption through Innovation, R&D and Energy Import in Indonesia. The results and findings illustrate there is a significant impact on the use of technology, innovation on energy consumption. At the same time, the control variables have a significant impact on energy consumption. The higher is the population growth the higher is the energy consumption also (Purwanto, Sinaga, Hayati, & Sidik, 2021).

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11 Corporate social responsibility (CSR): Evaluating/auditing corporate social responsibility (CSR) practices

Introduction

The concept of corporate social responsibility (CSR) and social audit originates from the concept of social partnership what was introduced by the International Labor Organization in 1919, alongside the tripartite a system of relationships between laborers, state and the local government bodies. The purpose was to benefit all the parties involved. Following the concept of tripartite the concept of corporate social responsibility started to take place in the second half of the industrial revolution. The development occurred through debates on whether companies should pursue both economic and social functions that took place between business representatives and authors from leading business schools. The term was coined by Bowen 1953 in which he described CSR as "the set of moral and personal obligations that the employer must follow considering the exercise of policy decisions or courses of action in terms of objectives and values desired by society. What exactly is meant by society is further explained by Phillips, Freeman and Wicks as they

suggest 5 important groups of stakeholder recipients and controller of CSR policies, financial control, agents, (e.g. shareholder) customers, suppliers' employees and communities. A more detailed classification is provided which suggests the following groups, the government, environmental organizations, NGO's professionals critics or experts the media and other in general (citizens locals or those who affect or are themselves be affected by companies.) (Denisov, Khachaturyan, & Umonova, 2018). There a variety of different criteria that develop on these basic definitions proposed by different institutions.

The importance of evaluating/auditing/ critiquing Corporate Social Responsibility (CSR) practices

CSR is an imperative part of a company's way of business, but today's CSR is interpreted in many ways by companies. Is CSR volunteering? Is it inclusion and diversity? Is it that employees wear and act on the company's mission in and outside of work? The statement seems to be aligned with the course assignments and companies' responsibilities. "To be clear- CSR is not an option; it is what business do. Being able to respond efficiently and effectively to the needs and demands of stakeholders is not only the key to success in today's global business environment- it is the key to survival" (Chandler, 2020, p.1). A great example that is relevant today is Coronavirus (COVID-19), how are companies responding? The public is evaluating and critiquing every move whether companies are aware or not. Companies are losing millions of dollars having to close completely and employees are being quarantined to their homes. This is not for just the safety of employees, but consumers. Profits aside, public health and safety are number one and companies can step up and contribute and display corporate social responsibility, which is not an option.

How can we evaluate this? Should similar industries be held to similar or equal standards? As stated above, the definition of CSR to all companies many vary. It is imperative to align on the definition of CSR in order to evaluate effectively.

There are different definitions to CSR because it explores the responsibility of a company towards society and the environment. These different definitions of CSR have been present for a long time, and there were discussions as to what extent should companies be responsible for broader stakeholders. (Glavas, & Fitzgerals, 2020) However, "an action that appears to further social good, beyond the interests of the firm is required by law" (Glavas, & Fitzgerals, 2020).

The term 'social audit' was coined according to French researchers by, Martine Combemale and Jacques Igalens were first introduced by Theodore J Kreps, professor at Stanford University in the context of evaluations of social contributions of various businesses in 1940's. Another advocate of the idea was Charles Medawar who was debating in favor of social audit application in two primary areas: the health sector and the public sector. He suggested that in a democratic society those who are responsible for making impactful for community decisions must be held accountable for the use of their power. Hence, social audit can be defined as; the 'process by which people the final beneficiaries of any scheme program policies ad laws are empowered to review any scheme policy program or law.' The item's under review must be subject to inspection throughout all phases of their existence. Starting from the planning and preparation, through implementation and until after the completion. A social audit must conform to the following principles:

1. Multi-perspective (must include all stakeholders)
2. Comprehensive
3. Participatory

4. Transparency
5. Multidirectional
6. Regular Basis
7. Comparative (against benchmarks, other organizations and previous periods)
8. Verified
9. Disclosed (information must be taken to stakeholders immediately on relevant actions or inactions.)
10. Accountability

Therefore, social audit is a measurement of how mature the B2G (business to government) connections are. Additionally, social audit may be a contribution to the process of renewal of management concepts (Denisov, Khachaturyan, & Umonova, 2018).

CSR is a method for companies to align themselves with socially beneficial actions that benefit the public and the stakeholders (such action can be economical, societal, and environmental in nature, for example.) Moreover, when a business successfully implements a CSR plan into its business strategy, the firm can not only benefit humanity but increase the social standing of its brand. In addition to simply aiming to comply by CSR guidelines, a company must specifically evaluate its own CSR responsibilities, audit its CSR measurements, and critique its practices. Each aspect is important to gain a proper foothold in this endeavor. For instance, a company must evaluate its CSR practices to understand if the firm is operating under proper CSR guidelines. For instance, if the company self-regulating in terms of a business model.

Additionally, it is equally as important for an outside entity to audit and critique a company's CSR practices. This prevents the organization from becoming complacent in their operations and procedures. Auditing a company's CSR guidelines makes sure that the firm is sincerely following the policy that it has put into place. Auditing such information

allows a company to see if they are "truly hitting the mark" or "making good" in terms of its objectives (Price, 2012). The importance of an audit always allows the company to understand the needs and desires of the firm's employees and stakeholders. Additionally, while the audit can be conducted by an internal member of the organization, it is more beneficial to have the procedure led by a third party to reduce biases. In this way, an increase in vulnerabilities can be determined though audits and critiques of a business's Corporate Social Responsibility.

Audit and evaluation criteria

From our earlier analysis, we have ascertained that the inception of the idea of CSR and Social Audit originated from the concept of social partnership between labor, state and local governments. Furthermore, the involvement of the corporation in the roles of both economic and social functions is what forms the basis of CSR. The Social Audit explicitly means the evaluation of the social contributions of business. Hence, our audit criteria aim to solidify these foundations of CSR and Social Audit and focuses on the following: social partnership between, labor, state, local governments and the economic and social contribution of the business.

We start with the application of the criteria as prescribed in the business ethics book (Business Ethics). First and foremost, we consider and keep in mind the important moral and philosophical theories that provide for the underpinning and the foundation for the social responsibly and social audit. These include Instrumental and Intrinsic goodness, Teleology, Deontology, Relativist Perspective, Virtue Ethics, Justice, Cognitive Moral Development.

3.1. Culture audit

We move on to ascertain the best way to audit a company by following closely the modern definition of company culture. According to Fraidrich and Farrel 2016.

"A corporate culture is the shared beliefs top managers in a company have about how they should manage themselves and other employees and how they should conduct their businesses.

On the other hand, ethical culture stands as a subset of the company culture.

"The Ethical Culture reflects the integrity of decisions made and is a function of many factors including corporate policies top management's leadership on ethical issues, the influence of coworkers and the opportunity for unethical behavior."

Therefore, we ascertain that it is imperative to both access the shared beliefs of the top managers as well the integrity of the business decisions being made. We use well-known benchmarks to gauge integrity and the core values of the companies in question.

US Bank's Principles of Integrity: Being a role model for ethical behavior, promoting our cultural integrity, Fostering Open Communication, recognizing behavior that exemplifies our ethical principles and values.

Core Values of Marriot: Put People First Pursue Excellence Embrace Change Act with Integrity. Serve Our World. The literature reveals 4 basic types of culture that are used to provide the starting analysis into a corporate culture. Apathetic Culture, Caring Culture, Integrative Culture, Exacting Culture,

Power Analysis: Since power is has a crucial impact and shapes culture, we are careful in including our analysis of power. We use 5 main definitions of power 5 Types of Power; Rewards Power, Coercive Power, Legitimate Power, Expert Power, Referent Power and use Stakeholder analysis

such as; Employees (compensation and benefits, training and development, employee diversity, occupational health and safety, communications with management), Customers, (product safety and quality, management of customer complaints, service to disabled customers), Investors (transparency of shareholder communications, shareholder rights), Suppliers (encouraging, suppliers in developing countries, encouraging minority suppliers), Community (public health and safety protection, conservation of energy and materials, donations and support of local organizations), Environmental Groups (minimizing the use of energy, minimizing emissions and waste minimizing adverse environmental effects of goods and services).

Our cultural analysis would not be complete without a leadership analysis and audit.

3.2. Ethical leadership

"Leadership is the ability or authority to guide and direct others towards a goal".

Ethical Leaders have strong personal character, Ethical Leaders have a passion to do right, Ethical Leaders are proactive, Ethical leaders consider all stakeholder interests. Ethical leaders are role models for the organization's values, Ethical leaders are transparent and actively involved in decision making. Ethical leaders take a holistic view of the firm's ethical culture. Furthermore, Ethical Conflict, Conflict of Management Styles, Power Differences and Workplace Politics, Emotional Intelligence, Transactional Leadership Transformational Leadership are all-important variables to take into consideration when performing an ethical leadership audit.

3.3. Sustainability audit

In today's day and age, a company cannot maintain its competitive advantage with an ailing infrastructure or without sustainability initiatives.

According to Fraidrich and Farrel 2016;

"Sustainability from a strategic business perspective is the potential for the long-term well-being of the natural environment including all biological entities as well as mutually beneficial interactions among nature and individuals' organizations and business strategies Sustainably includes the assessment and improvement of business strategies, economic sectors, work practices, technologies, and lifestyles while maintaining the natural environment."

Benchmarking with the World's Most Sustainable Companies. Biogen Idec, Alergan, Adidas, Keppel Land, Keski, BMW, Reckitt Bnckiser, Centrica, Schneider Electric, Danske

Priority Global Environment Issues: The following environmental issues constitute the bulk of problems faced. Hence, a successful sustainably audit requires that we

Atmospheric Air Pollution, Acid Rain, Global Warming, Water, Water Pollution, Water Quantity, Land, Land Pollution, Waste Management, Deforestation, Urban Sprawl, Biodiversity, GMO's

Key Environmental Legislation

EPA, Clean Air Act 1970, National Environment Policy Act 1972, Coastal Zone Management Act, 1972, Federal Water Pollution Control Act, 1972, Noise Pollution, Control Act, 1972, Federal Insecticide, Fungicide, and Rodenticide Act, Endangered Species Act 1973, Safe Drinking Water Act 1974, Energy Policy Conservation Act 1975, Toxic Substances Control Act, 1976, Resource Conservation and Recovery Act, 1976, Comprehensive Environmental Response, Compensation and Liability Act, 1980, Emergency Planning

and Community Right-to Know Act, 1986, oil Pollution Act, 1990, Food Quality Protection Act, 1996, Energy Policy Act 2005, Energy Independence and Security Act, 2007.

Alternative Sources of Energy

Wind Power, Geothermal Power, Solar Power, Biofuels,

Business Response to Sustainability Issues:

Green Marketing, Greenwashing, Recycling Initiatives, Stakeholder Assessment, Risk Analysis.

3.4. Selected questions and additional criteria

Our preliminary analysis is very comprehensive but to complete and strengthen our analysis we use additional sources:

The Institute of Global Entrepreneurship reveals insightful analysis as to what exactly is a CSR Audit.

"Is your company a good global citizen? Does your company "walk-the-talk?" How do you know? Do you want to "unleash" the social entrepreneurs at your work?"

Hence, the audit reveals to both internal and external stakeholders the company's position of social responsibility. Hence, in current modern times, every company includes a section of corporate social responsibility in their public reports. The audit may be used for more than simply monitoring and evaluating your company's social performance. Companies can search to differentiate themselves in their marketplace start with an audit to help them create new social causes, marketing initiatives with nonprofits. These initiatives aid in capturing market share from direct competitors and even help introduce new products.

5 steps a company can take are Situational Analysis, Benchmarking, Brainstorming, Evaluating Alternatives and Creating the Action Plan. Hence, our audit focuses on select questions from the Institute geared towards the 5 steps of a CSR audit.

Corporate Social Responsibly efforts create a lot of change. Hence, sharing the new with both internal and external stakeholders is imperative. Therefore, we identify and use in our audit criteria 9 key components of a CSR report to enable a company to communicate its CSR efforts.

These 9 Key Components include the following: Business Overview, Transparency, Authenticity, Letter from the CEO, Sustainability Goals, Target Performance Summaries, Case Studies, Issue Prioritization and Sources (Globalgiving, 2019).

The criteria are further enhanced by considering the weaknesses of the audit. Hence, we look towards sources that would help us close the cracks in our armor. Hence, using an article by Gluu an ERP firm that provides innovative technological solutions to document CSR. Hence, we identify the weak points in the audit and address them (Gluu, 2019).

3.5. Selected questions for audit

Culture

1. Does the company have a written code of conduct?
2. Does the company have a mission statement?
3. Are there processes or other means by which ethics are integrated into any or all manufacturing distribution, e-commerce, and general corporate strategy decision?

Sustainability

1. Does this company use alternative sources of energy?
2. *Does this company promote/integrate green marketing, recycling initiatives?*
3. Does the organization show a high commitment to strategic environmental policy, do employees know the environmental compliance policies of the organization?
4. Are managers familiar with the environmental compliance policies of the organization? Has the

organization compared its environmental initiatives with those of other firms?

Global Entrepreneurship Institute Benchmarks.

Situational Analysis, Benchmarking, Brainstorming, Evaluating Alternative Creating the Action Plan.

9 Key Components of a CSR Report

- Business Overview, Transparency, Authenticity, Letter from the CEO, Sustainability Goals, Target Performance Summaries, Case Studies, Issue Prioritization and Sources (Globalgiving, 2019)

Assessing an Audits Weakness.

- A Case of Optimal Compliance in the Clothing Industry
- Social Responsibility Automatically Documented.
- Going Above and Beyond (Gluu, 2018).

Application of audit criteria

4.1. Amazon

Does the company have a written code of conduct?

Amazon's code of conduct describes the corporation's response to regulations, conflicts of interest, insider trading policy, discrimination and harassment, health and safety procedures, price-fixing, bribery (payments to government personnel), recordkeeping, reporting, and financial integrity, questions (such as reports incorporating violations), periodic certification, board of directors, and waivers (Code of Business Conduct and Ethics, 2020). A written code of conduct is important for Amazon due to the sheer amount of business that the company conducts. It also sets a standard for the company to fall back on in times of uncertainty.

Does a company have a mission statement?

Amazon's mission statement is as follows: "We strive to offer our customers the lowest possible prices, the best available selection, and the utmost convenience" (Amazon Mission Statement, 2020, p.2). The content in Amazon's

mission statement goes further than simply outlining what the company will do in terms of meeting customer needs and pricing options of products. Here, customers can see information regarding affordable prices, varied selections, and convenience policy (Amazon Mission Statement, 2020). The mission statement of Amazon is critically important to the organization due to the sheer amount of business conducted within its operations and all the people affected. As stated, the mission statement covers the interest of customers, but this also emphasizes employees to strive for success.

Are there processes or other means by which ethics are integrated into any or all manufacturing distribution, e-commerce, and general corporate strategy decision?

Amazon core values are as follows: "customer obsession, ownership, invent and simplify, hire and develop the best, insist on the highest standards, think big, the bias for action, frugality, vocally self-critical, earn the trust of others, dive deep, have backbone, disagree and commit, and deliver results" (Amazon Mission Statement, 2020, p.4). Any company needs to incorporate ethics into its standard business operations; however, this is especially true for Amazon Since the company is considered one of the "Big Four technology companies"; with this prestige comes influence – influence to change the world.

Does this company use alternative sources of energy?

Amazon has a wide variety of alternative sources of energy and sustainability programs in place and for the future. Such examples include "Frustration-Free Packaging, Ship in Own Container, networks of solar and wind farms, solar and fulfillment center rooftops, and investments in the circular economy with Closed Loop Fund, and other initiatives happening every day by teams across Amazon" (Clark, 2020, p.1). In today's age, consumers are seeking to align themselves with companies who not only ethically

centered but environmentally focused as well. In the case of Amazon, the firm has a true possibility to make a difference due to the company's heavy reliance on vehicle distribution.

Does this company promote/integrate green marketing, recycling initiatives?

The company also works to promote and use green recycling initiates. For instance, the firm has a goal to power the "global infrastructure" with 100% renewable resources in the future. The company has worked towards this goal through progress with electric vehicles, aviation biofuels, renewable energy, and reusable packaging (Clark, 2020). This initiative is important for Amazon due to the vast amount of packaging and materials discharged from receiving, storing, and shipping goods around the world.

Does the organization show a high commitment to strategic environmental policy, do employees know the environmental compliance policies of the organization?

One main mission for Amazon is to reduce carbon emissions by 50% by the year 2030. Fortunately, due to the improvements in green marketing and recycling initiatives, the company has seen growth in this area in recent years: known as "Shipment Zero" (Clark, 2020). Employees are also aware of such improvements and innovations. For instance, Amazon employees have been known to rise against certain policies and uphold others., An example can be seen in the recent Amazon policy on climate change when employees criticized Amazon's contributions toward the issue (Kickelsburg, 2020). This aspect is important for Amazon to abide by due to how it affects the business' day to day operations. The mentality of employees, not management, is vitally important to a business due to how it affects productivity and turnover rates. As employees' comprehension of his or her company's policies increase, as does his or her work ethic and drive to succeed for the company (Boitnott, 2015).

Are managers familiar with the environmental compliance policies of the organization? Has the organization compared its environmental initiatives with those of other firms?

The company's environmental compliance policies are known to the general public and the firm's managers. Moreover, the company does compare its policies to that of other companies. An example can be found when the firm compares its climate change initiative to Walmart and Apple. In this comparison, Amazon is driven to increase its contribution to the issue (Day, Roston, & Bloomber, 2019). In addition to general employees, top management must not only be familiar with the policies of the firm but the firm itself must also keep track of how other companies in their industry are performing. This concept is important due to how knowledge affects every aspect of company operations, procedures, and success. Since Amazon is known as the lead e-commerce company, the firm must be aware of new firms attempting to take its place. This can be conducted through an internal analysis of its operations and external analysis of the industry.

4.2. Apple Inc.

Does the company have a written code of conduct?

Apple Inc.'s supplier developed and changed its code of conduct many times to reflect the significant issues that are evolving with the technological world. The company made these updates to their code of conduct to ensure that working conditions are safe, workers are treated with respect and dignity, and manufacturing processes are environmentally responsible. Apple's code of conduct focuses on different vital areas, such as labor and human rights, health and safety, environment, management systems, and ethics. The current company's code of conduct is written in great detail and available to the private sector as well as to the public (Apple, Inc).

Does a company have a mission statement?

Apple's mission statement is as follows: "To bring the best user experience to its customers through its innovative hardware, software, and services" (Apple mission and vision statement analysis, 2019, p.1). The statement also describes that the company intends to offer its clients the best services possible. Some of the components derived from the mission statement are the best user experience, improving the lives of people, empowerment of the public, and top-quality product (Apple mission and vision statement analysis, 2019). The mission statement of Apple Inc. indicates the necessary actions for ensuring that the firm continues its path towards success.

Are there processes or other means by which ethics are integrated into any or all manufacturing distribution, e-commerce, and general corporate strategy decision?

Apple's core values are "inclusion and diversity, education, accessibility, environment, supplier responsibility, and privacy" (Apple mission and vision statement analysis, 2019). A multinational company like Apple Inc. encounters social and environmental concerns that society expects them to take responsibility for as public issues. The company applies its domestic ethical programs to other global environments.

Does this company use an alternative source of energy?

Apple uses 100 percent clean energy of its Apple production. Many of its suppliers commit to 100 percent clean energy production. Apple's CEO, Tim Cook, stated, "We're committed to leaving the work better than we found it. After years of hard work, we're proud to have reached this significant milestone (Apple Inc. Press Release, 2018). Also, the Press Release describes that Apple Inc. promotes 100 percent renewable energy and wants to set an example for other companies to follow (Apple, Inc. Press Release 2018).

Does this company promote/integrate green marketing, recycling?

Apple Inc. offers recycling programs in most countries it operates and has diverted more than 508 million pounds of electronic waste from landfills since 2008 (Dudovsky, 2019). Apple puts a lot of effort to initiate and promote recycling throughout all of its suppliers. 2018 Progress report describes that during the 2017 fiscal year, about 80 percent of corporate paper use was from recycled sources as well as reducing plastic with responsibility sourced and recycled paper.

Does the organization show a high commitment to strategic environmental policy, do employees know the environmental compliance policies of the organization?

Apple made a significant contribution to reducing the volume of overall emissions. The company's progress reports describe in great detail all the steps that they are taking regarding the reduction of carbon emission usage. They are also helping their suppliers to switch to renewable energy. Apple reduced the average energy consumed by 68 percent. According to the 2018 progress report, all employees and suppliers are aware of their role to sustain Apple's environment, health and safety management systems, and policy.

Are the managers familiar with the environmental compliance policies of the organization? Has the organization compared its environmental initiatives with those of other firms?

The company's policies are transparent and available to employees, managers, suppliers, and the public. Apple ensures that all employees are aware of their role and responsibility to fulfill and sustain Apple's environmental, health, and safety management systems and policy. Apple wants Amazon to move away from fossil fuels and to prioritize climate impact when making business decisions (Braig, 2019).

4.3. McKesson

Does the company have a written code of conduct?

Having a written code of conduct at McKesson is vital, based on various reasons. First, it enables the members of the organization to understand and be reminded of the standards under which they are expected to operate. Secondly, the code of ethics enhances the promotion of a competent professional and social culture, as it makes the process of assessing the employees' behavior to be more objective since the code of conduct is used as a reference. Therefore, incorporating CSR in the written code of conduct enhances its implementation effectiveness (Ismail, 2019). McKesson Corporation (McKesson) is a global leader in healthcare supply chain management solutions, retail pharmacy, community oncology and specialty care, and healthcare information technology. As a company, Mckesson working to use economic, environmental, social and governance resources thoughtfully and responsibly (Servaes & Tamayo, 2013). That way, Mckesson can make a positive impact on the company, environment, and society. Overall, the Mckesson code of conduct is based on "ICARE." It describes the fundamental principles, local policies, and procedures that shape their work. It covers a wide range of topics that may occur when interacting with customers, industry partners and each other (Servaes & Tamayo, 2013). Also, it gives helpful guidance regarding where to turn in case of questions or concerns about the right thing to do. Most importantly, the Code of Conduct is available in 17 languages and various dialects.

Does a company have a mission statement?

Mckesson's mission statement is as follows: "Our mission is to provide comprehensive pharmacy solutions that improve productivity, profitability and result in superior patient care and satisfaction" (Servaes & Tamayo, 2013). With a mission statement, McKesson has its energy and

attention focused, as it stays with the organization through each decision that it makes. Besides, it sparks new ideas; that is, as the company discusses and considers the mission statement, the mission statement tends to open to new ideas. The mission statement also shapes up the culture of McKesson; this makes it possible for the members of the company to adopt various environmental policies as part of the culture.

Are there processes or other means by which ethics are integrated into any or all manufacturing distribution, e-commerce, and general corporate strategy decision?

At McKesson, the way they do business is just as important as the business itself. Mckesson employees all understand the responsibility they bear as they work together toward their common goal: to advance the health care system for better health for all. That's why they look toward "ICARE" shared principles as a unifying set of values to guide in their mission. Mckesson's core values are the foundation of the company's reputation as a trusted organization that goes the extra mile to advance its customers' success. Their shared principles include integrity, customer-first, accountability, respect, and excellence (Servaes & Tamayo, 2013). The integration of ethics in various operations within McKesson is vital. Such operations include manufacturing distribution, general corporate strategy decisions, and e-commerce. Among the ethics-related activities include CSR policy enforcement, policy development, and program monitoring (Servaes & Tamayo, 2013).

Does this company use alternative sources of energy?

CSR remains a hot topic, with most of the Fortune 500 companies unveiling aggressive goals about clean energy. McKesson, among other Fortune 500 companies, transitioning the usage of their energy to the alternative or renewable sources, is very vital in the enhancement

of sustainability goals. Mckesson uses electricity for lighting and IT, and fuel for heating and transportation, including inbound and outbound distribution and business travel (Servaes & Tamayo, 2013). Also, Mckesson focus on efficiency across these areas. In their distribution centers and pharmacies, Mckesson focus on reducing energy use and finding alternative sources of energy (Servaes & Tamayo, 2013). Besides offsetting the cost of energy, renewable energy also enhances the success of CSR through the implementation of the company.

Does this company promote/integrate green marketing, recycling initiatives?

Notably, Mckesson limiting water use is with a smart irrigation program, currently, under pilot at a large office located in the U.S. This system adjusts watering times based on weather conditions and lets us check our water use remotely. Therefore, users can receive notifications about changes to the settings or equipment malfunctions. In other words, automation saves water because the irrigation system runs less often, and it is easier to identify problems (Kulsum & Ernesto, 2018). Besides this, by going digital, Mckesson is using less paper. Their initiatives range from paperless invoices and two-sided printing, which will cut printing by 34 million sheets of paper, to electronic handheld scanners for packing orders in distribution centers (Kulsum & Ernesto, 2018). When Mckesson can't avoid using paper, they encourage the use of recycled stock. Overall, the Mckesson environmental commitment begins by adhering to all applicable environmental laws and regulations (Kulsum & Ernesto, 2018). Just as they take great care in the safety and security of their products, services, and people, they are careful and thoughtful to minimize the effect of their company operations on the environment. As the newest type of marketing, green marketing has enhanced the production, promotion, and recycling products that are friendly to the

environment. McKesson's cooperation with other companies in the adoption of green marketing will lead to the development of a better future. Some of the problems that shall be met by the adoption include the replacement of conventional products (Liskova, Cudlinova, Partlova, & Petr, 2016).

Does the organization show a high commitment to strategic environmental policy, do employees know the environmental compliance policies of the organization?

The commitment of McKesson to the strategic environmental policy is vital. This is based on the fact that being a systematic process of decision support. It enhances consideration of environmental and sustainability aspects in policy, and this promotes CSR. For example, Mckesson works with private-label suppliers outside the U.S., Canada, and the European Union (Kulsum & Ernesto, 2018). Those suppliers must agree to McKesson Sustainable Supply Chain Principles (MSSP). The MSSP covers compliance with appropriate laws along with adherence to our strict policies on protecting workers, preparing for emergencies, identifying and managing environmental risk, and protecting the environment (Kulsum & Ernesto, 2018). Therefore, this makes McKesson to be favored by its stakeholders. Thus, members of the company will be motivated to comply with environmental policies (Kulsum & Ernesto, 2018).

Are managers familiar with the environmental compliance policies of the organization? Has the organization compared its environmental initiatives with those of other firms?

Comparison of McKesson's environmental initiatives with other companies is of great value since it will enable the company to know how it ranks among other companies regarding environmental footprints left by its operations in the supply chain. From the comparison, the company will be able to identify its operations that require

improvement concerning its responsibility to the environment and also know other organizations or ventures are performing better than it does, then organize for benchmarking for the enhancement of its performance in the environmental responsibility. The comparison will also be an indication of cooperation among the companies, which is vital to the community as it will lead to a substantial effect on the environmental responsibilities from the companies which are with the industry.

In the sources, through a partnership with World Vision, McKesson's Medical-Surgical business donated 229 pallets of supplies during FY19 (Liskova, Cudlinova, Partlova, & Petr, 2016). These donations have helped support important health initiatives in seven countries. These programs include that screen and treat young children in Somalia for malnutrition and promote better access to care for pregnant and nursing women in Zambia (Liskova, Cudlinova, Partlova, & Petr, 2016). Besides this, the returns teams at several distribution centers in Canada collect returned or damaged products and arrange for them to be donated to nonprofit outreach programs (Liskova, Cudlinova, Partlova, & Petr, 2016). Overall, these partnerships help reduce waste while supporting their local communities in environmental initiatives.

Discussion & evaluation

As a team, we decided to choose three companies each in different industries, when evaluating the companies, the similarities started to show immediately. For instance, Amazon, Apple, and McKesson all have a written code of conduct, a mission statement and a clear dedication to the global environment. Although there are similarities, there are differences in how the criteria we evaluated is achieved.

Mckesson, for instance, has an extremely complex supply chain dealing with the healthcare suppliers and customers.

Mckesson's clear code of conduct impacts its suppliers. The suppliers are aware and held accountable, Corporate Social Responsibility is valued as Mckesson wants to streamline effective values and processes to all involved in operations. Mckesson also has a mission "I care" which sets the foundational values of their mission. Mckesson scores extremely high in these two areas, but as far as going green or the environmental impact, Mckesson counts on oil as their main source of energy. Mckesson is working on this and is being transparent. Mckesson is installing LED lighting, reducing electricity usage, limiting travel and encouraging by bike or bus.

Apple on the other hand currently uses 100% clean energy for its production and expects this out of its suppliers. In addition, "Apple Inc. offers recycling programs in most countries it operates and has diverted more than 508 million pounds of electronic waste from landfills since 2008 (Dudovsky, 2019)."

Amazon has one foot into the future when it comes to Corporate Social Responsibility. An example, the firm has a goal to power the "global infrastructure" with 100% renewable resources in the future. The company has worked towards this goal through progress with electric vehicles, aviation biofuels, renewable energy, and reusable packaging (Clark, 2020). Amazon, in addition, promotes recycling and a safe environmentally friendly environment. Amazon can also receive benefits from their mission. Amazon has many warehouses and their own shipping. Amazon can reduce emissions, cut back warehouse costs. We view CSR in all forms as a win-win.

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12 Technology ethics

Introduction

Technology Ethics is defined as the application of ethical thinking to the practical concerns of technology. In recent years with the rapid development of technology this field has reached prominence because new innovative technologies give us more power to act. Hence, in the past where our actions were limited by our weakness, in this day and age of technological advancement they are voluntarily constrained by our judgement and hence ethics. In recent years many new ethical questions have arisen due to innovations in medical communications, weapons technology, and workplace technologies. Therefore, for example, there used to be no brain death criteria as we do not have the technological prowess to ask that questions, but in this day and age with the technological prowess of being able to artificially maintain circulation and respiration this question has become much more serious. In the same way the rise of

media communications gives rise to new questions when it comes to social media and we are still coming to terms with access to the information of so many people. Many issues have arisen such a fake news and how things can quickly go wrong on social media, and how criminals may have access to information of private individuals due to data breeches and hacks of company databases (Green, n.d.).

The changes in technology come with disruptions and raise many ethical questions representing powerful risks. Therefore, these disruptions give rise to questions and demand us to critically think before accepting these changes as permeant in our lives. We do have a choice as to how we implement and integrate these technologies into our lives. Furthermore, our intellect and existing systems allow us to govern these technologies by laws and regulations and other agreements. Hence, it is required for us to ask fundamentally important questions as we navigate this new field and to evaluate what is right and what is wrong, what is good and what is evil.

Hence, as long as there is technological progress there will be need and growth of technology ethics, and hence as Chief Information Technology it is imperative to understand the different ethical and legal positions that arise due to technological advancement (Green, n.d.).

It ethics

Perhaps the best way to start the discussion on IT Ethics is through the framework developed by the Association of Computing Machinery. The Association of Computing Machinery (ACM) is one of the earliest organizations to provide guidance in the form of ethical content and form. The ACM has written an ethical code by which many IT professionals abide by. This Code of Ethics referred to as Code covers four basic categories containing key principles The Code of Ethics covers four specific categories containing

key principles and appropriate action items to follow (Machinery, 2020).

Table 1. *Selection of the ACM Code of Ethics and Professional Practice*

1. GENERAL MORAL IMPERATIVES.
1.1 Contribute to society and human well-being.
1.2 Avoid harm to others.
1.3 Be honest and trustworthy.
1.4 Be fair and take action not to discriminate.
1.5 Honor property rights including copyrights and patent.
1.6 Give proper credit for intellectual property.
1.7 Respect the privacy of others.
1.8 Honor confidentiality.
2. MORE SPECIFIC PROFESSIONAL RESPONSIBILITIES.
2.1 Strive to achieve the highest quality, effectiveness and dignity in both the process and products of professional work.
2.3 Know and respect existing laws pertaining to professional work.
2.4 Accept and provide appropriate professional review.
2.5 Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.
2.6 Honor contracts, agreements, and assigned responsibilities.
2.7 Improve public understanding of computing and its consequences. 2.8 Access computing and communication resources only when authorized to do so
2.9 Design and implement systems that are robustly and usably secure
3. PROFESSIONAL LEADERSHIP PRINCIPLES

3.1 Ensure that the public good is the central concern during all professional computing work. 3.2 Articulate, encourage acceptance of and evaluate fulfillment of social responsibility by members of the organization or group

3.3 Manage personnel and resources to enhance the quality of working life.

3.4 Articulate, apply and support policies and processes that reflect the principles of the Code

3.5 Create opportunities for members of the organization or group to grow as professionals.

3.6 Use case when modifying or retiring systems.

3.7 Recognize and take special care of system that become integrated into the infrastructure of society

4 COMPLIANCE WITH THE CODE

A computing professional should...

4.1 Uphold, promote and respect the principles of the Code.

4.2 Treat Violations of the case as inconsistent with membership in the ACM

The Code of Ethics provided for by ACM provides for a comprehensive outline from which to start our inquiry into the IT Ethics (Machinery, 2020).

When it comes to business of all sizes but especially small business that utilize Information Technology, there are four area of critical concern and hence; piracy, data protection and privacy, ransoms and ransomware, ethics and AI (Weedmark, 2018).

Piracy

Evolution in information of technology removes ethical dilemmas IT Managers and CTO's face. Software piracy is such a case, but even with the advancements in technology worldwide piracy is still an issue. IT is estimated that 37

percent of software on personal computers is unlicensed according to Forrester Groups 2018 BSA Global software survey. With time this problem is not as severe as before. It is again estimated that malware costs companies nearly $359 billion a year hence it makes financial sense to use licensed software. Furthermore, with proper software management, companies can increase profits by as much as 11 percent per year.

The legal implication of unauthorized software use should be clear as it is very daunting. According to the US Copyright Act, illegal reproduction of software is subject to civil damages of as much as $100,000 per title infringed plus criminal penalties including fines of as much as $250,000 per title infringed and imprisonment of up to five years. Given these high stakes, the consequences are certainly not worth the risk (Weedmark, 2018).

If we for a moment set aside the legal risks of software piracy and look at it from an ethical perspective, we would begin by examining the principles of fairness and justice. Companies devote a large portion of their earning to the creation of new software products. The programmers, writers and all of the highly skilled labor involved deserve to be compensated for their efforts just as we expect fair compensation for ours. We all prefer to have a world where respect for our own property and for the property of others is the norm. Furthermore, if we apply the virtue approach to ethics, we apply the concepts of honesty, trustworthiness, faithfulness and integrity and soon discover that piracy of software does not fall into any of these categories (Shoup, n.d.).

Therefore, what are the best practices that an IT Manager of CTO can adopt in case of piracy? The first step is to get rid of any pirated software so that you are not viewed as a role model that supports pirated software. Secondly find the resources to purchase the software that is needed for the

workplace. This comes with many advantages, such as user support, ability to avoid legal penalties and most importantly setting a standard and acting ethically. Furthermore, many companies have developed written employee policies about the use of software and this practice should be adopted and studies carefully. A great resource is for developing such a policy is the following: The Software Publishers Association (Shoup, n.d.).

Data protection and privacy

With the advancement in Information Technology one of the biggest problems that have surfaced is Data Protection and Privacy. Hence, customer and employee data protection from being exposed to the public or from being hacked is of vital importance in this day and age. However, the line between the cost of protection of digital information has become blurred in the recent years. Firewalls, encryption technologies, virtual private networks, security specialists all require a significant amount of capital. According to Foresters 2018 report on ethics and consumer action, 79 percent of US adults use tools to protect their digital privacy and security online. The survey also estimates that regulations such as California's Consumer Privacy Act and the GDPR also continue the consumer push-back against companies that do not protect data or use data responsibly (Weedmark, 2018).

The EU's General Data Protection Regulation (GDPR) is a great starting point regarding the data privacy in global organizations. The GDPR isn't just about protecting sensitive information against hackers and leaks. The GDPR, also focuses on data privacy for business. Therefore, for organizations that are subject to the GDPR there are two broad categories of compliance: data protection and data privacy. Data protection means keeping data safe from unauthorized, and data-privacy means empowering users to

make their own decision about who can process their data and for what purpose. The GDPR is the toughest privacy and security law in the world. Though it was drafter and passed by the EU it imposes obligation onto organizations anywhere so long as they target or collect data related to people in the EU. The regulation was put into effect on May 25th, 2018. The GDPR has the ability to levy harsh fines against those who violate its privacy and security standards with penalties reaching into the tens of millions of euros (GDPR, 2020).

The GDPR is a signal from the Europe on the stance on data privacy and security at a time where more and more people are entrusting their personal information to cloud services while at the same time the number of data breaches is at an all-time high. Some of the important legal terms of the GDPR.

- Personal Data – Is any information that relates to an individual who can be directly or indirectly identified.
- Data Processing – Any action performed on data whether automated or manual
- Data Subject – The person whose data is processed. These are your customers or site visitors.
- Data Controller – The person who decides why and how personal data will be processed.
- If you're an owner or employee in your organization who handles data, this is you.
- Data Processor – A third party that processes personal data on half of a data controller. The GDPR has special rules for these individuals and organizations (GDPR, 2020).

Data protection principles

1. Lawfulness, fairness and transparency— Processing must be lawful, fair, and transparent to the data subject.

2. Purpose limitation — You must process data for the legitimate purposes specified

explicitly to the data subject when you collected it.

3. Data minimization — You should collect and process only as much data as absolutely necessary for the purposes specified.

4. Accuracy — You must keep personal data accurate and up to date.

5.Storage limitation — You may only store personally identifying data for as long as necessary for the specified purpose.

6. Integrity and confidentiality — Processing must be done in such a way as to ensure appropriate security, integrity, and confidentiality (e.g. by using encryption).

7. Accountability — The data controller is responsible for being able to demonstrate GDPR compliance with all of these principles (GDPR, 2020).

Accountability

Have Data Processing Agreement contracts in place with third parties you contract to process data for you. Appoint a Data Protection Officer (GDPR, 2020).

Data Security

- Data is to be handled securely by implementing "appropriate technical and organizational measures:
- Technical measures include, two factor authentication and end-to-end encryption.
- Organizational measures include staff training, data privacy policy and limiting access to

personal data.

- In case of a data breach there is a 72 hour window to inform the subject or face a penalty (GDPR, 2020).

Data Protection by Design and by Default.

From now on everything you do in your organization must "by design and by default consider data protection. This means that you must consider the data protection principles in the design of any new product or activity. Hence, for example you're launching a new app for your

company. You have to think about what personal data the app could possibly collect from users, then consider ways to minimize the amount of data and how you will secure it with the latest technology. Data Processing. The processing of person data is also a legal issue. It can only be processed when one of the following justifications are provided.

1. The data subject gave you specific, unambiguous consent to process the data. (e.g. They've opted in to your marketing email list.)

2. Processing is necessary to execute or to prepare to enter into a contract to which the data subject is a party. (e.g. You need to do a background check before leasing property to a prospective tenant.)

3. You need to process it to comply with a legal obligation of yours. (e.g. You receive an order from the court in your jurisdiction.)

4. You need to process the data to save somebody's life. (e.g. Well, you'll probably know when this one applies.)

5. Processing is necessary to perform a task in the public interest or to carry out some official function. (e.g. You're a private garbage collection company.)

6. You have a legitimate interest to process someone's personal data. This is the most flexible lawful basis, though the "fundamental rights and freedoms of the data subject" always override your interests, especially if it's a child's data. (It's difficult to give an example here because there are a variety of factors you'll need to consider for your case (GDPR, 2020).

Consent. There are now strict rules about what constitutes consent from a data subject to process their information.

- Consent must be "freely given, specific, informed and unambiguous."
- Requests for consent must be "clearly distinguishable from the other matters" and presented in "clear and plain language."

- Data subjects can withdraw previously given consent whenever they want, and you have to honor their decision. You can't simply change the legal basis of the processing to one of the other justifications.
- Children under 13 can only give consent with permission from their parent.
- You need to keep documentary evidence of consent (GDPR, 2020).

Data Protection Officers. The conditions to appoint a Data Protection Officer.

1. You are a public authority other than a court acting in a judicial capacity.
2. Your core activities require you to monitor people systematically and regularly on a large scale. (e.g. You're Google.)
3. Your core activities are large-scale processing of special categories of data listed under Article 9 of the GDPR or data relating to criminal convictions and offenses mentioned in Article 10. (e.g. You're a medical office.)

People's Privacy Rights: The GDPR recognizes a litany of new privacy rights for data subject which aim to give individuals more control over the data they loan to organizations. As an organization, IT Manager or a CTO, it is important to understand these rights to ensure you GDPR compliment. (GDPR, 2020).

Data Subjects privacy rights:

2. The right to be informed
3. The right of access
4. The right to rectification
5. The right to erasure

RANSOMS & RANSOMWARE

6. The right to restrict processing
7. The right to data portability
8. The right to object

9. Rights in relation to automated decision making and profiling (GDPR, 2020).

In recent years the ethical problems in information technology have been complicated even further with a rise of ransomware attacks. Hackers infiltrate a computer network and take control of it and then demand a payment for a code that will release it. If you don't pay the ransom, you may lose all the data stored in the network. Even if you have the data backed up the time and expense of restoring our network may be more than the cost of paying the ransom. Business owners and IT managers who pay the ransom do so knowing that it will encourage hackers to do the same thing in an another organization. In 2016 the ride-sharing service Uber is an example of a ransom attack where Uber paid $100,000 ransom to hackers who accessed the personal data of 57 million people including information about the Uber drivers and their customers. The ethical and legal dilemma that arose was Uber's negligence in not telling the public. It wasn't until a a year (Stanford, 2020) later that the ransom was revealed. This resulted in a court hearing and record fine of $148 million (Weedmark, 2018).

Ransomware incidents can have serious consequences for business processes and organizations leaving them without the data needed to operate and deliver mission-critical services. Malicious actors have adjusted their ransomware tactics over time to include pressuring victims for payment by threatening to release stolen data if they refuse to pa and publicly naming and shaming victims as secondary forms of extortion. The monetary value of ransom demands has also increased with some demands exceeding $1 million. Ransomware incidents have become more destructive and impactful in nature and scope. Malicious actors engage in lateral movement to target critical data and prorogate ransomware across entire networks. These actors also increasingly use tactics such as deleting system backups, that

make restoration and recovery more difficult and less feasible for impacted organizations (Industry, 2020).

Ransomware Prevention Best Practices: Be Prepared: Maintain offline encrypted backups of data. Maintain regularly updated 'gold images' of critical systems. Retain backup hardware to rebuild systems in the event rebuilding the primary system is not preferred. In addition to system images applicable source code or executable should be available. Create maintain and exercise a basic cyber incident response plan (Industry, 2020).

Ransomware Infection Vector: Internet-Facing Vulnerabilities and Misconfigurations. Conduct regular vulnerability scanning to identify and address vulnerabilities especially those on internet facing-devices to limit the attack surface. Regularly patch and update software and Oss to the latest available versions. Ensure devices are properly configured and that security features are enabled. Employ best practices for use of RDP and other remote desktop services and audit systems (Industry, 2020).

Ransomware Infection Vector: Phishing. Implement a cybersecurity user awareness and training program that includes guidance on how to identify and report suspicious activity.

Implement filters at the email gateway to filter out emails with known malicious indicators.

Ethics and AI

To lower the chance of spoofed emails from valid domains implement Domain-based Message Authentication. Consider disabling macro scripts for Ms Office (Industry, 2020).

Ransomware Infection Vector: Precursor Malware Infection: Ensure antivirus and anti- malware software and signatures are up to date. Use application directory allow listing on all assets to ensure that only authorized software's

can run, and all unauthorizes software is blocked from executing. Consider implementing an intrusion detection system (IDS) to detect command and control activity and other potentially malicious network activity that occurs to ransomware (Industry, 2020).

Ransomware Infection Vector: Third Parties and Managed Service Providers: Take into consideration the risk management and cybergenic practices of third parties or managed service providers (MSPs) your organization relies on to meet its mission. MPS's have been an infection vector for ransomware impacting client organization. Understand that adversaries may exploit the trusted relationship your organization as with third parties and MSPS (Industry, 2020).

AI Ethics has become a business imperative for many a boards and C-Suites. A very important question that is being asked by is. What does responsible AI looks like and who owns it? The other question that is asked is if artificial intelligence (AI) will help us or hinder us? AI as a problem-solving tool offers a great promise. On the other hand, the emergence of AI has also exposed many problems such as cyber-attacks, social manipulation, completion for financial incentives and more warn of a dark-side to AI-Ethics. Hence, if an organization seeks to transform itself using AI ethical risks that arise are of a critical concern (Weedmark, 2018).

AI is the term that is used to encompass technologies that can mimic intelligent human behavior. There are four major AI categories that are of increasing use nowadays.

1. Machine Learning. The ability of statistical models to develop capabilities and improve their performance over time without the need to follow explicitly programmed instructions.

2.Deep Learning: A complex form of machine learning used for image and speech recognition and involving neural networks with many layers and abstract variables.

3.Natural language processing (NL): A Technology that powers voice-based interfaces for virtual assistants and chatbots a well as querying data ses by extracting or generating meaning and intent from the text in a readable stylistically neutral and grammatically correct form.

4.Computer vision: A technology that extracts meaning and intent out of visual elements whether characters (in the case of document digitization) or the categorization of content in images such as faces, objects scenes and activities (Deloitte, 2020).

Ethics deals with what is good and band and with moral duty and obligation as well as the principles of conduct governing and individual or a group. In the field of commerce, the ethical mindset supports value-based decision and what is not only good for the business but what's good for the organization's employees, client's customers, and communities, in which it operates. Hence, when we bring these two definitions, we come to the definition of AI Ethics which refers to the organization constructs that delineate right and wrong. These constructs include corporate values, policies and code of ethics, and hence form the guiding principles applied to AI technologies (Deloitte, 2020).

According to Stanford, the field of AI ethics and robotics is a very young field within the field of applied ethics, with significant dynamic, but few well established issues and no authoritative overviews. A promising outline has been constructed by the European Group on Ethics in Science and New Technologies 2018 and we are beginning to see the societal impact (Deloitte, 2020).

The following ae the emerging areas in AI Ethics according to Deloitte:

- Technology, data and security; looking at the organizations approach to the AI lifecycle from an ethical

perspective, including the ways it builds and tests data and models into AI-enabled solution.

- Risk Management and Compliance; finding out how the organization develops and enforces policies procedures and standards for AI solutions.
- People, skills, organizational models, and training; understanding and monitoring how the use of AI impacts the experiences of both employees and customers.
- Public Policy, legal and regulatory frameworks, and impact on society; developing a place in the business environment, this includes the level of acceptance AI has in government and

culture (Deloitte, 2020).

AI Ethics Risks:

- Research and Design; The solutions inherent risks (such as a computer vision application that captures and potentially misuses customers or employees images or other personally identifiable information.)
- Build and Train; the organization lacks appropriate ways to secure consent from individuals whose data is used to train the AI model.
- Change and operate. A chatbot (an Ai application that can include cognitive language capabilities, learns behaviors that are inappropriate or offensive to customers.

Furthermore, Stanford has identified 10 areas of AI that are major concerns and are open to debate.

1.Privacy and Surveillance,
2.Manipulation of Behavior
3.Opacity of AI systems
4.Bias in Decision Systems
5.Human Robot Interaction
6.Automation and Employment
7.Autonomous Systems
8.Machine Ethics
9. Artificial Moral Agents

10. Singularity (Stanford, Stanford, 2020)

Conclusion

Information technology is essential to the lives of people around the globe and is a global phenomenon. These technologies many different types of forms and exists in every facets of our lives. All these technologies have some computational power at their core and humans' interface with them mostly through applications and operating systems. These technologies are opening up many new ways for humans to interact with each other as well as advances in communication, Information technology has also had a major impact on philosophical discussion of logic, ethics and law giving rise to new sub-fields in fields of applied ethics, logic and law. Moral challenges are ever present in the fields of Information Technology and this summary focuses on four major areas: piracy, data protection and privacy, ransoms and ransom ware and AI ethics. These four serves as a major starting point into the field of Information Technology Ethics and are essential for IT Managers and CTO's. According to Stanford, further moral challenges include information recording, communication and accessing information, organizing and synthesizing information, cultural issues, social media networking, online and virtual games, transparency, artificial life, and information technologies role in moral discovery, moral systems and moral agents. Through-out the summary many of these issues are addressed although briefly and require a much more sophisticated discussion and exploration which is yet to come as the field of Information Technology advances and grows (Stanford, Stanford, 2020).

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13 Eurodollar futures and LIBOR

Introduction

The Eurodollar interest rate is the rate of interest earned on Eurodollars deposited by one bank with another bank. It is in many ways the same as the London Interbank Offer Rate (LIBOR). The 3-month Eurodollar futures contracts are futures contracts on the three-month Eurodollar interest rate. The contracts have maturities in March, June, September and December for up to 10 years in the future.

Calculation:

If X is the quoted price for a Eurodollar futures contract, the exchange defines the value of one contract as:

$$10{,}000\,[100-0.25(100-X)] \qquad (1)$$

Thus, the Settlement price of 95.53 for the June 2011 contract as shown in the tables below, corresponds to the contract price of:

$$10,000[100 – 025(100-95.53] = \$988,825$$

It can be seen from equation [1] that a change of one basis point or 0.01 in a Eurodollar futures quote corresponds to a contract price change of $25.

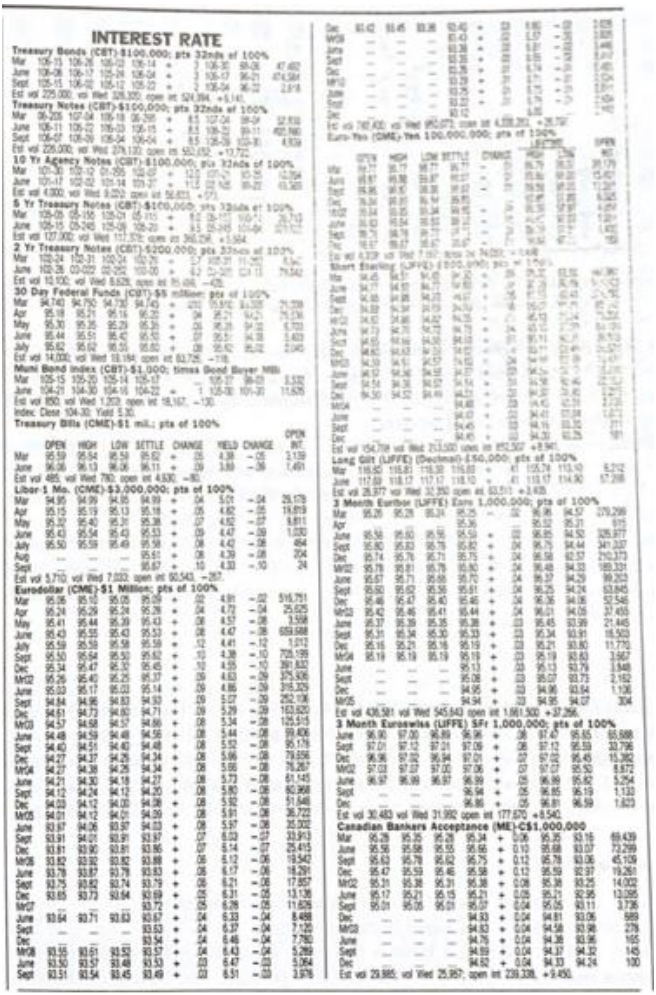
When the third Wednesday of the delivery month is reached the contract is settle in cash. The final marketing to market sets Q equal to 100 – R where R is the actual three-month Eurodollar interest rate on that day, expressed with quarterly compounding and an actual/360-day count convention. Thus, if the three-month Eurodollar interest rate on the third Wednesday of the delivery month is 8% the final marking to market is 92 and the final contract price from equation [1] is:

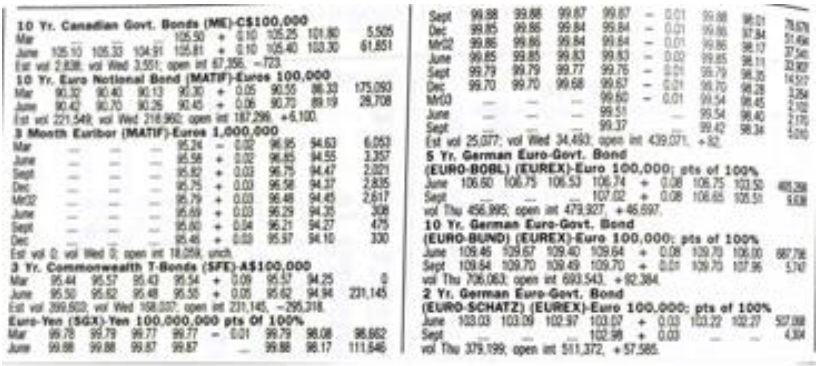
$$10,000[100-0.25(100-92)] = \$980,000$$

If Q is a Eurodollar futures quote, (100-Q) % is the Eurodollar futures interest rate for a three-month period beginning on the third Wednesday of the delivery month. If Q is a Eurodollar futures quote, (100-Q) % is the Eurodollar futures interest rate for a three-month period beginning on the third Wednesday of the delivery month. Thus, the below table indicates that on March 15, 2011 the futures interest rate for the three-month period beginning Wednesday June 20, 2001, was 100-95.53 = 4.47%. This is expressed with quarterly compounding and an actual/360-day count convention.

Other contract similar to the CME Eurodollar future contract trade on interest rates in other countries. As shown in the table below CME and SGX trade Eur- yen contracts, LIFFE and MATIF trade Euribor contracts (i.e contracts on the three-month Libor rate for the euro) and LIFFE trades three-moth Euro Swiss futures

Interest rate futures quotes from the WSJ March 16 2001. (Columns show month, open, high, low, settle change, lifetime high, lifetime low, and open interest, respectively)





10 Yr. Canadian Govt. Bonds (ME)-C$100,000

Mar	—	—	—	105.50	+ 0.10	105.25	101.80	5,505
June	105.10	105.33	104.91	105.81	+ 0.10	105.40	103.30	61,851

Est vol 2,838; vol Wed 3,551; open int 67,356, −723.

10 Yr. Euro Notional Bond (MATIF)-Euros 100,000

Mar	90.32	90.40	90.13	90.30	+ 0.05	90.55	86.33	175,093
June	90.42	90.70	90.26	90.45	+ 0.06	90.70	89.19	28,708

Est vol 221,549; vol Wed 218,962; open int 187,299, +6,100.

3 Month Euribor (MATIF)-Euros 1,000,000

Mar	—	—	—	95.24	− 0.02	96.95	94.63	6,053
June	—	—	—	95.58	+ 0.02	96.85	94.55	3,357
Sept	—	—	—	95.82	+ 0.03	96.75	94.47	2,021
Dec	—	—	—	95.75	+ 0.03	96.58	94.37	2,835
Mr02	—	—	—	95.79	+ 0.03	96.48	94.45	2,617
June	—	—	—	95.69	+ 0.03	96.29	94.35	308
Sept	—	—	—	95.60	+ 0.04	96.21	94.27	475
Dec	—	—	—	95.48	+ 0.03	95.97	94.10	330

Est vol 0; vol Wed 0; open int 18,259, unch.

3 Yr. Commonwealth T-Bonds (SFE)-A$100,000

Mar	95.44	95.57	95.43	95.54	+ 0.09	95.57	94.25	0
June	95.50	95.62	95.48	95.55	+ 0.05	95.62	94.94	231,145

Est vol 399,603; vol Wed 168,037; open int 231,145, −295,318.

Euro-Yen (SGX)-Yen 100,000,000 pts Of 100%

Mar	99.78	99.79	99.77	99.77	− 0.01	99.79	98.08	98,662
June	99.88	99.88	99.87	99.87	—	99.88	98.17	111,646
Sept	99.88	99.88	99.87	99.87	− 0.01	99.88	98.01	78,679
Dec	99.85	99.86	99.84	99.84	− 0.01	99.86	97.84	51,496
Mr02	99.86	99.86	99.84	99.84	− 0.01	99.86	98.17	37,540
June	99.85	99.85	99.83	99.83	− 0.02	99.85	98.11	33,907
Sept	99.79	99.79	99.77	99.76	− 0.01	99.79	98.35	14,517
Dec	99.70	99.70	99.68	99.67	− 0.01	99.70	98.28	3,264
Mr03	—	—	—	99.60	− 0.01	99.54	98.45	2,102
June	—	—	—	99.51	—	99.54	98.40	2,170
Sept	—	—	—	99.37	—	99.42	98.34	1,010

Est vol 25,077; vol Wed 34,493; open int 439,071, +82.

5 Yr. German Euro-Govt. Bond (EURO-BOBL) (EUREX)-Euro 100,000; pts of 100%

June	106.60	106.75	106.53	106.74	+ 0.08	106.75	103.50	485,268
Sept	—	—	—	107.02	+ 0.08	106.65	105.51	9,638

vol Thu 456,995; open int 479,927, +46,697.

10 Yr. German Euro-Govt. Bond (EURO-BUND) (EUREX)-Euro 100,000; pts of 100%

June	109.46	109.67	109.40	109.64	+ 0.08	109.70	106.00	667,736
Sept	109.64	109.70	109.49	109.70	+ 0.01	109.70	107.96	5,747

vol Thu 706,063; open int 693,543, +92,384.

2 Yr. German Euro-Govt. Bond (EURO-SCHATZ) (EUREX)-Euro 100,000; pts of 100%

June	103.03	103.09	102.97	103.07	+ 0.03	103.22	102.27	507,098
Sept	—	—	—	102.98	+ 0.03	—	—	4,304

vol Thu 379,199; open int 511,372, +57,585.

Forward vs future rates

For short maturities (upto one year) the Eurodollar interest rate can be assumed to be the same as the corresponding forward interest rate.

A convexity adjustment is made to convert Eurodollar future rates to forward interest rates.

$$Forward\ Rate = Futures\ Rate - \frac{1}{2}\sigma^2 t_1 t_2$$

Where t_1 is the time to maturity of the futures contract, t_2 is the time to maturity of the rate underlying the futures contract and σ is the standard deviation of change in the short-term interest rate in one year. Both rate are expressed with continuous compounding. A typical value for σ is 1.2% or 0.012.

Hence,

Considering the situation where σ=0.012 and we wish to calculate the forward rate when the eight-year Eurodollar futures price quote is 94. In this case In this case t_1 = 8, t_2=8.25, and the convexity adjusted,

$$\frac{1}{2} \times 0.012^2 \times 8 \times 0.00475$$

Or 0.475%. The futures rate is 6% per annum on an actual/360 basis with quarterly compounding. This is 6 x 365/360 = 6.083% per anum on an actual/365 basis with quarterly compounding or 6.038% with continuous compounding. The forward rate is, therefore 6.038-0.475 = 5.563% per annum with continuous compounding.

The forward rate is less than the futures rate. The size of the adjustment is roughly proportional to the square of the time to maturity of the futures contract. Thus, the convexity adjustment for the eight-year contract is approximately 64 times for a one-year contract.

The LIBOR zero curve

The LIBOR zero curve which is also sometimes referred to as the swap zero curve is frequently used as a risk-free-zero curve when derivatives are valued. Spot LIBOR rates are used to determine very short-term LIBOR zero rates. After that Euro futures (i.e Eurodollar futures, Euroyen futures, Euribor futures, etc.) are frequently used. Once a convexity adjustment such as that just described is made, the Euro futures contract define forward rates for future three-month time periods.

In the US, March, June, September and December Eurodollar futures are often used to determine the LIBOR zero curve out to five years. Suppose that the ith Eurodollar futures contract matures at time Ti (i=1,2,..). We usually assume that the forward interest rate calculated from this futures contract applies to the Period Ti to Ti+1. (There is at most a small approximation here). This enables a bootstrap procedure to be sued to determine zero rates. Suppose that Fi is the forward rate calculated from the ith Eurodollar futures contract and Ri is the zero rate for a maturity Ti:

Then we have

$$F_1 = \frac{R_{i+1}T_{t+1} - R_iT_i}{T_{i+1} - T_i}$$

So that,

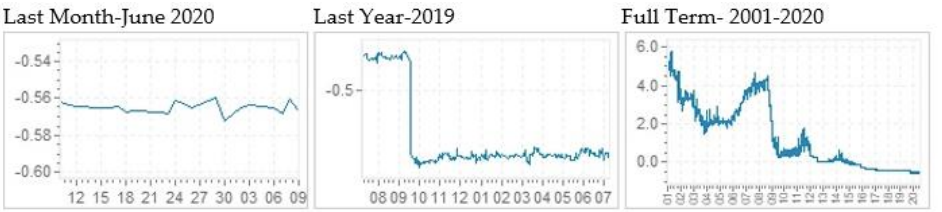
$$R_{i+1} = \frac{F_i(T_{i+1} - T_i) + R_iT_i}{T_{i+1}}$$

Hence,

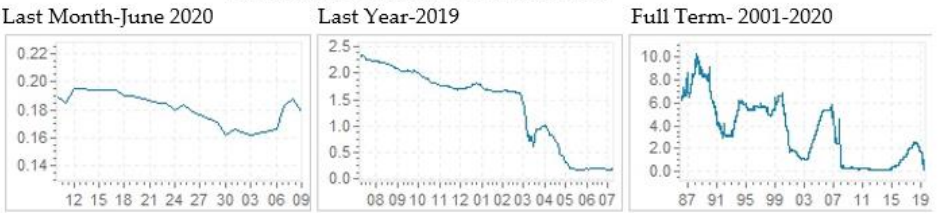
The 400-day LIBOR zero rate has been calculated as 4.80% with continuous compounding and from a Eurodollar future quote it has been calculated that the forward rate for a 91 day period beginning in 400 days is 5.30% with continuous compounding We can use the above equations to obtain the 491-day rate as

$$\frac{0.053\ x\ 91 + 0.048\ x\ 400}{491} = 004893$$

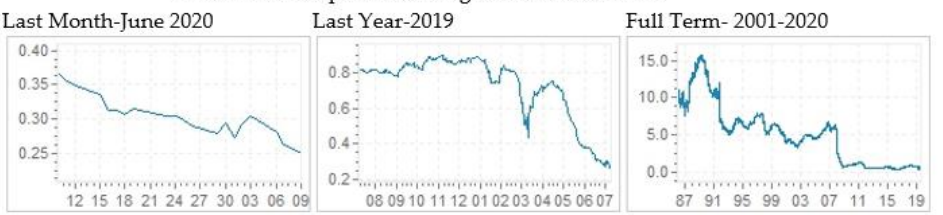
Eurodollar futures and LIBOR



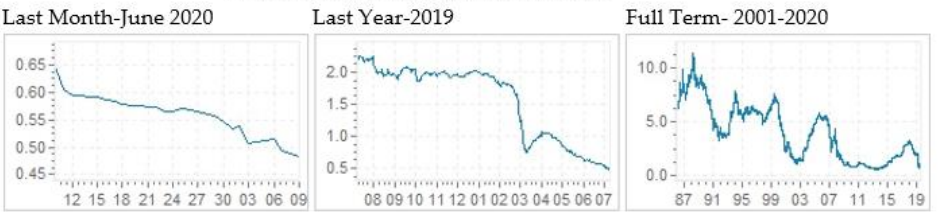
1-month US Dollar LIBOR Interest rate.



6-month British pound sterling LIBOR interest rate

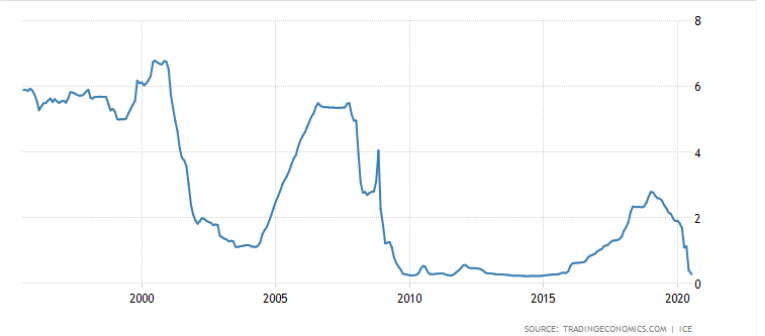


12-Month US Dollar LIBOR interest rate

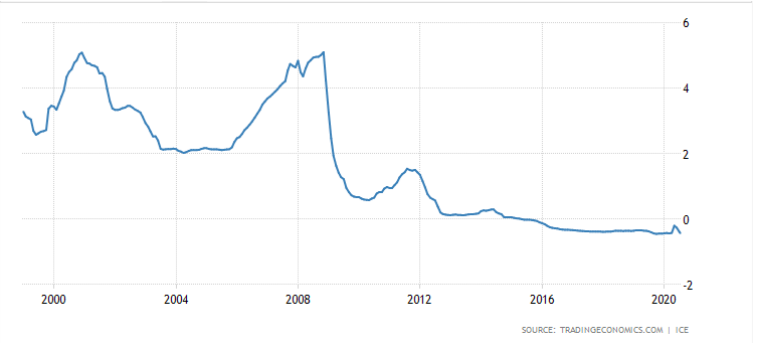


Source: [Retrieved from].

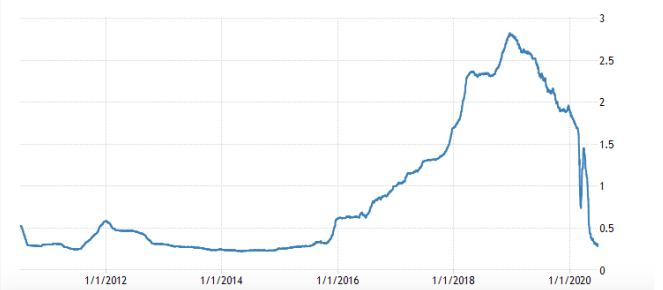
US Dollar LIBOR Three Month Rate



Euro LIBOR Three Month Rate

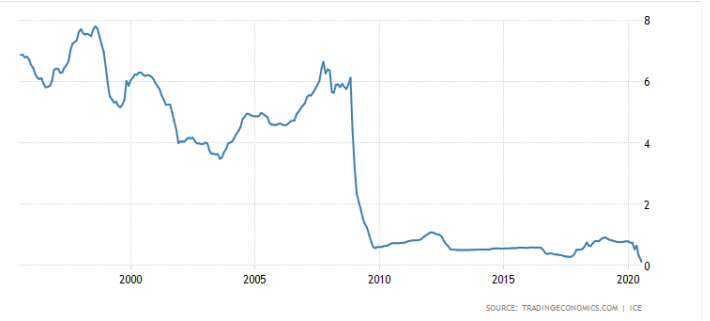


US – Three Month LIBOR, based on US Dollar



British Pound Libor Three Month Rate

Eurodollar futures and LIBOR



Source: [Retrieved from].

Eurodollar futures provide an effective means for companies for companies and banks to secure interest rate for money they plan to borrow or lend in the future. The Eurodollar is used to hedge against yield curve changes over multiple years in the future. A Eurodollar future is a cash settled futures contract who price moves in response to the LIBOR interest rate. Eurodollar futures are a way for companies and banks to lock in an interest rate today, for money they intend to borrow or lend in the future. LIBOR is the average interbank interest rate at which a selection of banks on the London money market are prepared to lend to one another. The LIBOR comes in 7 maturities (from over to 12 months) and in 5 different currencies. The LIBOR is important because lenders, including banks and other financial institutions use LIBOR as the benchmark reference for determining interest rate for various debt instruments. It is also used as benchmark for mortgages, corporate loans, government bonds, credit cards, student loans in various countries. Hence, the importance of both the Eurodollar future and LIBOR rates cannot be stressed enough especially in the case international financial management and financial crises.

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Essays in Economics:
Macroeconomic analyzes and perspectives of economic thought

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ISBN: 978-625-7501-81-1 (e-Book)
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Muhammad Mustafa Rashid

Chapter 1: The purpose of this chapter is to provide insights into how the proliferation of globalization has impacted labor markets both in a advanced industrialized nations and well as developing nations. Insightful analysis will be drawn from Oatley (2011) on division of labor, Jaumotte & Tytell (2007) on labor compensation, Hahn & Narjoko (2013) on the impact on South Asian Countries, Basu (2016) on wage as a share of GDP and Wallace, Gauchat & Fullerton (2011) on the impact of globalization and labor markets on inequality.

Chapter 2: Building on the system of reason provided for by the Greek philosopher and specifically Aristotle, St. Thomas Aquinas built a comprehensive system and theory of natural law which has lasted through the ages. The theory was further developed in the Middle Ages and in the Enlightenment Ages by many a prominent philosopher and economist and has been recognized in the Modern Age. The natural law-theory and system has been repeatedly applied to the spheres of economic thought and has produced many lasting contributions such as private property rights and individual rights. In recent times with the collapses of the financial system and rapid globalization, there has been a renewed interest in the application of natural law theory to economics to counter a certain anthropology and distortion of values created by a modern economic system of self-preservation deriving its insights from the philosophies of Thomas Hobbes and Niccolo Machiavelli.

Chapter 3: The credit crises experienced in the US in year 2008 is labeled as perhaps the most significant crises since the great depression. The roots of the crises were found in the default of the sub-prime mortgages and the failure occurred in both the US and the UK. Due to the integrated nature of international financial systems the spillover impacted many countries as the economies in Asia and Europe were purchasers of the sub-prime mortgages that originated in both UK and US. The impact of the credit crises in Canada is of unique importance due to the close proximity to US, and both the US and Canada being of great strategic importance to each other as well as one of the largest trading partners.Even though the international financial credit crises adversely impacted many countries, the evidence that has come across recent years point towards the conclusion that Canada was able to weather the crises much better than many other countries.

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e-ISBN
978-625-7501-81-1
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